Arizona ICJIS Strategic Plan

Prepared for

Arizona Criminal Justice Commission

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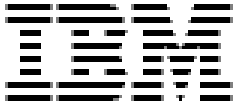

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Executive Summary

In the fall of 2001, IBM Corporation, working under contract with Spherion, was contracted to prepare a strategy document for the integration of criminal justice agencies' information systems for the State of Arizona by the State's Criminal Justice Commission (ACJC). ACJC directed IBM to focus on integration from the specific perspective of the State's Disposition Reporting (DR) process. IBM's Public Safety & Justice National Practice was employed to perform this engagement. This document was prepared as a result of IBM's study.

Introduction & Problem Statement

The State of Arizona's Computerized Criminal History (ACCH) system functions as a statewide repository for the arrests and dispositions of charges for all persons arrested in the state. The information contained in this system is used for a variety of critical business purposes throughout the criminal justice system. Prosecutors and Judges make charging and sentencing decisions based on the information. Law enforcement officers make discretionary arrest and detention decisions based on it. Corrections officials make character assessments and parole and probation decisions based on the information from the system. And even the private sector makes important business decisions based on information available to them from the ACCH. The decision to hire or fire a person may well be made based upon information contained in the ACCH, the Criminal History Record Information (CHRI).

Based on the broad and varied use of the information contained in the system, Arizona's Computerized Criminal History System has a potential impact on virtually everyone in the state, resident or visitor.

In the early 1990's, when Arizona sought funding from the Criminal Justice Records Improvement Program (CJRIP), the National Criminal History Improvement Program (NCHIP) and the State Improvement Program (SIS) to address it's problems, it was clearly indicated that long-term and continuous funding of the various initiatives it launched was necessary to create the infrastructure, culture and political environment necessary to bring about integrated criminal justice for the State. As of this writing, statewide integrated justice remains a realized necessity, yet still only a vision for the State of Arizona.

The ACCH contains information about people and their criminal past. The individuals in the ACCH have been identified using the State's Automated Fingerprint Identification System (AZ AFIS), but may still have duplicate entries and inaccurate names and other identifying information associated with their records. When criminal justice practitioners access the information, it is accessed largely by names coupled with other demographics data like date of birth, social security number, physical description, known aliases, etc. in addition to using the State's AZ AFIS Live Scan process. Arizona's criminal justice agencies take pain-staking efforts to ensure that the information going into the system is accurate and complete, but the current processes of submission of this information are fraught with opportunities for errors. Some of the results of these deficiencies are as follows:

- Though based on positive AFIS identification, the individual's AFIS record may be based on false information (e.g., incorrect names, dates of birth and social security numbers, etc.)
- As much as 65% of the charges made against individuals in the State of Arizona are handled in such a manner that they may not get into the ACCH at all.

- It is possible that an individual can commit a homicide, be charged, found guilty and sentenced, and never have it appear on their Criminal History Record Information (CHRI).
- It is also possible for a person to be arrested and detained for a crime s/he did not commit, to be completely exonerated, and yet still have a criminal history record for the crime.
- It is possible for an individual to be arrested using anyone else's name and demographic information, and for that person to cause an AZ AFIS record to be created and establish an unsuspecting and innocent person as a criminal.
- Of the charges that do get into the ACCH, only 50% or fewer of these charges are ultimately completed with a disposition, rendering the other 50% incomplete, thus unusable.
- The lack of charges with dispositions results in the release of repeat offenders who would have otherwise remained in custody or received enhanced charges.
- Of the charges that do get into the ACCH, many may be duplicated due to the manual processing of the information, resulting in falsely inflated records for individuals.
- Because the Disposition Reporting process is manual, and coupled to paper forms, the process has an indefinite time line to completion making it all but impossible to track or account for as cases can take from hours to years to complete.

IBM's study uncovered numerous scenarios for potential failures in the Disposition Reporting process. However, our findings basically suggest that persons who should be dealt with more severely by the system are likely to be dealt with much less severely in the absence of completed charge dispositions in the ACCH. This is not due to lenience on the part of Judges and Prosecutors, but on rules of law and criminal procedures that do not permit them to speculate on the outcomes of those prior charges that lack proper dispositions by the involved agencies. One account told by an interviewee in our study told of a Driving Under the Influence Defendant, with multiple prior offenses that lacked dispositions, being released due to a lack of useable Criminal History Record Information (CHRI). The individual then goes on to drive under the influence again shortly after his release, this time killing someone.

IBM's findings also suggests that innocent persons have little chance of clearing faulty records that result for offenders using their names and demographic information when first entered into the system. In many cases, the existence of CHRI for an innocent person is not discovered until they are applying for a job, specialized licensing or until they come into contact with law enforcement for some purpose. And although there is a process to append a criminal history record with explanations and notes that clear up errant information, the ACCH's printouts don't currently include these notations.

Ultimately, it is the limitations of paper-based information processing and the complexity of the tasks associated with accurately reporting charge dispositions that must be resolved in order to remedy the situation and bring Arizona to their desired level of accuracy and completeness in the future. Based on the ramifications of the current status of the ACCH, this endeavor should be viewed as critically important to the State of Arizona, and imperative to the dependability, accountability and proper function of its criminal justice enterprise.

The Solution

In order to achieve the degree of accuracy and completeness desired for disposition reporting, as well as the long-term vision of statewide integration of it's justice enterprise, Arizona must do more than rework existing processes, or adding new ones. Band Aid approaches to integration rarely achieve more than slight improvements. The State of Arizona needs a new approach to doing things that comes directly from a thoughtful view of what needs to be done in order for all of the state's criminal justice agencies to work together.

The basis of IBM's recommendation is a centralized tracking system that minimizes the need to create unique interfaces to each agency's existing systems. Our recommendation is that Arizona implements this centralized system using web-based technologies as virtually all agencies in the State have access to one or more of the State's large data networks and the Internet. Those agencies that lack connectivity to one of these networks still had an ability to connect to the Internet and may access the new system as an extranet using Virtual Private Network (VPN) or similar technology to tunnel into the secure system.

This centralized strategy is meant to allow agencies their autonomy and leveraging existing systems and initiatives, while providing common ground on which they can work together. The system's design is meant to introduce capabilities that enable accountability and trace ability throughout the process of building accurate, timely and complete criminal history records in a multi-agency, constituency-based process, and maximizing the rate of successful processing of CCH records. The environment on which this system will run also provides a statewide infrastructure on which the State's future integrated justice enterprise can operate.

The following recommendations include strategies for policy and governance, measurement, funding, incentives, a 5-year plan and required changes and enhancements across the broad criminal justice enterprise of the State of Arizona.

Summary: The Bottom Line

In 1992, a decade prior to this report, Executive Consulting Group, a consulting firm retained to assist with the Criminal Justice Records Improvement Program (CJRIP) for Arizona, wrote this regarding the disposition reporting process:

"The lack of understanding of and compliance with arrest and disposition reporting by local agency personnel had reduced the accuracy and completeness of criminal history records information in Arizona. Training, coordination and document controls were inadequate to ensure that arrests and dispositions are accurately reported to the central state repository. Critical resource shortages in many local jurisdictions have further reduced criminal justice records processing and maintenance priorities to the extent the backlogs of information remain and can be expected to increase."

As of this writing, virtually all of these problems remain. IBM's conclusions are supported by the 2001 findings of the State of Arizona's Office of the Auditor General in Report 01-28, and previous consulting reports and the interviews and questionnaires used in this study.

The fundamental question: Is Arizona content to live with these problems indefinitely? Or instead will they prioritize the implementation of a solution to these problems now that the technologies, existing efforts and investments, and agency attitudes and understanding are aligned to remedy.

Em·pir·i·cal

originating in or based on observation or experience <*empirical* data>

SOURCE: Mirriam-Webster Collegiate Dictionary

IBM's recommendations are intended to seed the beginnings of statewide-integrated justice through the entry point afforded by automating the disposition reporting process. The recommendations do not try and solve every single issue known in an effort to confirm the existence of a problem. Based on our interviews throughout the state, IBM assumes that the accounts of problems by the many criminal justice professionals involved are true, and that the observations and experiences of these professionals provide the empirical data to support our findings and recommendations.

IBM was not contracted to examine all the issues pertaining to public policy, ethics, and other matters and issues that were identified. IBM has recommended instead that such issues be deferred to proper authority to resolve. IBM also recognizes the importance of Arizona's AS-IS processes, but has prioritized the emerging TO-BE processes and improvements recommended in order to avoid getting stuck in endless analysis without viable solution and realistic recommendations for change in the time permitted.

Project Goals and Objectives

IBM's study targeted the Disposition Reporting process as a seed and business driver for the integration of justice in the State. The automation of the Disposition Reporting process provides a strategic entry point to an Integrated Criminal Justice Information System (ICJIS) in Arizona because all of the primary agencies involved in the criminal justice system participate in building the criminal history records. Keep in mind that Disposition Reporting, though a strategic beginning is only the beginning. Disposition Reporting provides a superb focus on which the State of Arizona can establish standards, applications, policy and governance, and the infrastructure needed to collaborate across all of the involved agencies. It is this potential of Disposition Reporting that makes it the perfect seed to statewide integrated justice for the State.

The scope of the project was as follows:

- Identify the critical success factors that must be accomplished to achieve the ACJC's target information technology functionality and technical environment for the Arizona ICJIS;
- Document the target future ICJIS process and function attributes;
- In addition to the participating agencies, identify the key stakeholders of the Arizona ICJIS;
- Perform a high-level business process analysis including review of existing documentation of ICJIS plans and requirements – to identify and document major process gaps;
- Conduct interviews of individual representatives of the participating agencies and collect data to identify and document the current primary business processes involved in interagency data sharing by the participating agencies and identify gaps in those processes;
- Coordinate participation of participating agencies and key stakeholders in facilitated sessions to provide structured input to the future direction and planning of the Arizona ICJIS;
- Prepare an overview of a high-level integrated justice systems architecture consisting of high level workflow diagrams of the current Arizona criminal justice system including identification of interagency data flows and data types, specific to the Disposition Reporting process;
- Prepare and deliver a Draft ICJIS Strategic Plan, addressing a five-year planning horizon, that summarizes the findings of this project and recommends a long-range strategy for the Arizona ICJIS; and
- Present the Final ICJIS Strategic Plan to a meeting of the ACJC, representatives of Participating Agencies and key stakeholders.

In order to obtain the necessary information for this project, IBM interviewed the participants listed below. Some interviews were conducted with individuals and pairs, while others were performed in larger group discussions like the Maricopa County ICJIS group. The interviews and discussions were preceded by questionnaire designed to elicit the participants' input to the overall definition and vision for statewide-integrated justice.

The non-state level participating agencies were selected by ACJC as a representative sampling of the state's criminal justice organizations. ACJC selected these agencies across representative population ranges, geography and their understanding of the varying ways in which Disposition Reporting was being handled in those counties. Various State agencies were interviewed prior to, during and after our primary interviews as was needed in order to clarify and demystify our findings. By all accounts from participants, this was the first such focused study on this critical statewide problem, and most people interviewed reported learning considerably more about the process through the study. In a few cases, agencies actually resolved problems and corrected business practices as a result of the interviews alone.

Arizona ICJIS SOW Participating Agencies

State/ County	*Location of Interviews*	*Participating Agencies*
Cochise	Bisbee	SO, CAty, SCt, MCt, JCt, MP, PD
Coconino	Flagstaff	SO, CAty, SCt, MCt, JCt, MP, PD
Gila	Globe	SO, CAty, SCt, MCt, JCt, MP, PD
Maricopa	Phoenix	DPS, AOC, DOC, TSA, SO, CAty, SCt, MCt, JCt, MP, PD, PubD
Navajo	Holbrook	SO, CAty, SCt
Navajo	Winslow	MCt, JCt, MP, PD
Pima	Tucson	SO, CAty, SCt, MCt, JCt, MP, PD, PubD
Pinal	Florence	SO, CAty, SCt, MCt, JCt, MP, PD, PubD
Santa Cruz	Nogales	SO, CAty, SCt, MCt, JCt, MP, PD
Yuma	Yuma	SO, CAty, SCt, MCt, JCt, MP, PD
State of AZ	Phoenix	ACJC, AOC, DOC, DPS, GITA

Abbreviations:

AOC	AZ Administrative Office of the Courts
ACJC	Arizona Criminal Justice Commission
DOC	AZ Department of Corrections
DPS	AZ Department of Public Safety
CAty	County Attorney (prosecutor)
PubD	Public Defender
JCt	Justice Court
MCt	Municipal Court
MP	Municipal Prosecutor
PD	Municipal Police Department
SCt	Superior Court
SO	County Sheriff's Office
GITA	Government Information Technology Agency
N/A	not applicable; not a Participating Agency as defined in this SOW

Current Situation

Review of Existing Environment

With the exception of two automated pilots underway in Arizona, the existing environment is a loosely tethered, sequential and collective manual process in which county agencies interact with state and municipal agencies with varying degrees of automated support to edit, amend and finalize charges on a paper form called the Disposition Report or more commonly, "the yellow sheet." The yellow sheet is created when the Live Scan process 01 is completed during booking. The yellow sheet then follows the paperwork associated with a charge(s) as it moves from agency to agency on its way to court and final disposition. Because crimes are assigned to various prosecutors and courts based on type and severity, policy and procedures, the yellow sheet is often duplicated and sent down multiple paths for completion of a subset of the charges requested by the arresting officer.

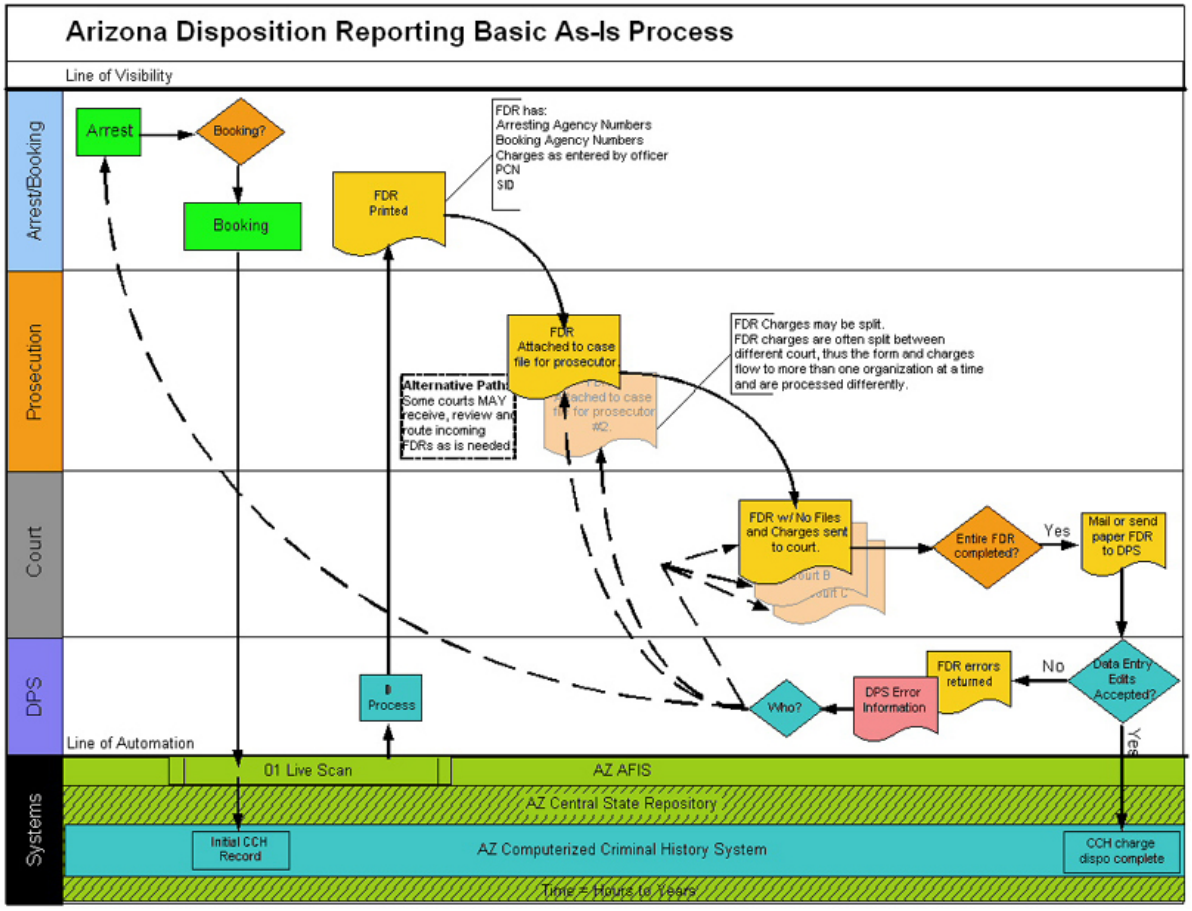


Figure 1: As-Is Process for Manual Disposition Reporting

The problem with this process is that there are at least three other methods in which agencies can bring charges against a person that do not involve a physical arrest and subsequent fingerprinting currently required to initiate the disposition reporting process. Based on the interviews, IBM believes

that as much as 50% to 65% of the charges subject to disposition reporting falls into a combination of the methods below. IBM also determined that these handling methods lacked the necessary checks and balances to ensure that criminal history information made it into ACCH at all. The following is a brief listing and description of these alternate methods of charging people with crimes:

Cite/Release

The cite/release (or Cite in lieu of Detention) method is when a police officer detains someone for a crime and issues a citation—a Notice to Appear in court to answer for the alleged crime. The citation charge(s) may be of a type that should be entered into the individual's criminal history, and ultimately disposed of through the disposition process.

Characteristics of Cite Release

- Criminal charge(s)
- No physical arrest/booking
- Person and data moves through the various systems without benefit of positive identification by AZ AFIS being complete or otherwise.
- Judge may or may not order individual to report to the Sheriff's Office for booking after the matter is adjudicated.
- Person simply may not comply with order to be booked and fingerprinted.
- Cite/Release matters typically bypass a Prosecutor's review.

The cite/release process, though it constitutes an arrest, does not involve transporting the person to jail for Live Scan and booking that would generate the Disposition Report form that ultimately goes to DPS for entry into the ACCH system.

Summons

The summons process involves the submission of a complaint alleging charges to the appropriate prosecutor's office for review and charging decision. The prosecutor may then file the charges, amend or append them, or refuse to file at their discretion. When charges are filed, the accused is notified and usually directed to appear in court on a certain date and time, to surrender himself to a law enforcement agency, to report to the Sheriff's Office for booking, or any of the above. Like cite/release, the summons method initiates charges without a physical arrest event, thus there is no Disposition Report generated until later when the person is booked.

Characteristics of Summons Method

- Criminal charge(s)
- No physical arrest/booking
- Person and data moves through the various systems without benefit of positive identification by AZ AFIS being complete or otherwise.
- Judge may or may not order individual to report to the Sheriff's Office for booking after the matter is adjudicated.
- Person simply may not comply with order to be booked and fingerprinted.

In-Custody Matters

In-Custody Matters primarily applies to the clients of the Department of Corrections. In the institutional setting of the prisons, inmates often commit crimes that result in the inmate being brought before the court for trial. Actual felony charges are brought against the inmate, just as if s/he had committed the crime on the street and had been arrested by a police officer.

The inmate is brought before the judge and may be convicted and sentenced. Once the process is complete, the inmate is returned to the prison and the new sentence applied to him. The entire matter may occur without a new booking on the new charges, thus the criminal charges will not be included in the criminal history system, and therefore unknown to the criminal justice community on query.

Characteristics of the In-Custody Matter

- Criminal charge(s)
- No new physical arrest/booking
- Person and data moves through the various systems without benefit of new positive identification by AZ AFIS being complete for the new charges.
- Judge may order individual to report to the Sheriff's Office for booking after the matter is adjudicated, but the security needs of maximum security prisoners is likely to result in the prisoner being returned to the prison directly.

IBM's study revealed that for some agencies, as much as 65% of their arrests were handled using the cite/release process that typically ends with the person charged never being booked and fingerprinted as ordered by the judge. Currently, there is no way for the courts or the jails to track persons who have been ordered to report to jail for booking for compliance. In the absence of booking, fingerprinting, and identification, the charges most likely will never make it into the ACCH.

Criminal History Records Post Only Twice

The current system posts a CHRI entry in the ACCH when a type 01 Live Scan is performed, presumably in connection with an arrest. The arresting officer or agency will cause a complaint to be submitted to the prosecutor who then handles the matter through adjudication where the court makes its final disposition of the charges.

This initial record created as a result of the 01 Live Scan is the beginning of the criminal history record for that set of charges. If the charges are not given a disposition at some point, then they remain the incomplete records that comprise the missing dispositions discussed previously in this document.

This system operates on two distinct posts. One occurs when the records are created, and the other when the paperwork has made it through and the final dispositions are data entered into the ACCH at DPS. Whether it takes days or years, the records cannot be considered as criminal history until the dispositions have been completed.

Because the manual processes associated with gathering the dispositions is tedious and lacks accountability and trace ability, the ACCH data is rendered unreliable with regard to completeness.

In 2001, Arizona's Office of the Auditor General reported, "Over 839,000, or 46 percent, of individual arrest charges in ACCH dating between 1995 and 1999 lack dispositions." The same report indicated that "DPS does not know which criminal justice agency failed to submit each disposition,"

and that "DPS does not consider a record incomplete until arrest charges are two or more years old to allow time for the charges to be resolved." The report cited the fact that over 20,000 dispositions were rejected by ACCH in 2001 because the information provided by the criminal justice agencies did not meet that system's requirements. The report revealed that the existing ACCH system and processes rejected dispositions in their entirety when technical flaws were encountered (e.g., guilty verdict missing sentencing information, variations between violation codes and violation descriptions, etc). In summary, the Auditor General's report found that DPS has to depend on over 300 agencies to collect criminal history records and that the process was fraught with opportunities for failure. (See Report Number 01-28, Performance Audit Department of Public Safety, State of Arizona Office of the Auditor General, October 2001)

Maricopa County's ICJIS organization provided many keen insights into the problems of the current processes. Maricopa's ICJIS project was farther along than any other in terms of countywide integration. In addition, Maricopa County's workload accounts for 65% or more of the volume of charges subject to disposition reporting, thus their ICJIS group had developed considerable insights to the failings of the current process in developing plans for their own integrated justice endeavors. For example, IBM learned that type 01 fingerprinting by arresting agencies did not generate PCNs that could be moved electronically to other agencies in the process. This deficiency results in delays and error-prone manual processing. As one of the first groups interviewed, many of IBM's recommendations have been influenced directly from Maricopa's ICJIS group's contributions in support of this project.

IBM's recommendations that follow will remedy this situation by introducing a way to track the development of the disposition information from inception to closure to bring about the State's ability to drive accountability throughout the process. This can be accomplished using electronic Disposition Reports and some related processes to help ensure that individuals ordered to jail for booking actually gets booked.

Accumulation of Charge Disposition Data

Driven by its tie to the AZ AFIS Live Scan 01 process, actual disposition report forms are generated after fingerprinting is done. This also creates the incomplete ACCH record and generates the Process Control Number (PCN). If a case continues on through it's various stages over days, weeks, and months or even years, then the paper disposition report form (or a copy of it) moves along at that pace as well. This results in disposition data being delayed and unusable for many important purposes.

IBM's recommendation is that Arizona adopt a new process in which charges subject to disposition reporting are tracked, managed and driven to completion in such a manner as to allow people who create and use the information to work together.

Our recommendations change Arizona's process to one in which charges subject to disposition reporting are updated as the work of key stakeholders and contributors is completed. Along the way, constituent agencies can see the progress, problems and status of any record or set of records as they move through the process. Changes and corrections can be easily accomplished on screen in a web browser, or by interacting with the data through interfaces with existing case and records management systems.

IBM's solution for posting records is not a new concept, but rather a concept for which the available technology and infrastructure is no longer a bar to implementation. According to DPS, the idea of posting and monitoring the progress of charge dispositions came up years ago, but was not implemented. Using modern enterprise information portal technology and existing networks, this smart vision can now be realized to achieve a vastly improved process for feeding the State's ACCH.

Existing Checks and Balances Alone Can't Drive Accountability

Some agencies felt strongly that various reports, data views and audit processes of the existing ACCH system were sufficient to solve the problem if only their use was enforced within the state, and "if everyone simply did their jobs."

IBM's examination of this notion found that although some capabilities did exist to better manage the process of disposition reporting, the lack of a centrally accessible and shared tracking system made accountability and trace ability all but impossible to achieve on a statewide basis.

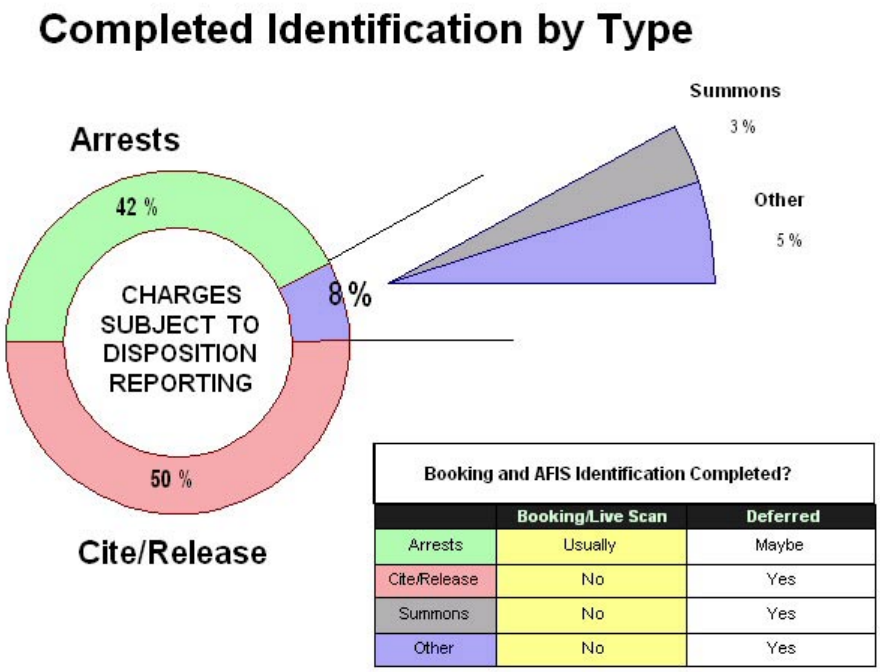
In order to achieve accountability in disposition reporting, Arizona must create an environment that is conducive to success. Such a system must do the following for the people involved in the process:

- Allow them to handle their disposition-related tasks while the associated case and information is contemporary and available.
- Establish clearer responsibilities and ownership of specific parts of the disposition reporting process and information.
- The elimination of problematic procedures, edits and violations of business rules through the use of smart interfaces for people and systems.
- Improve their abilities to communicate between agencies during creation of the disposition report.
- Make it easier to keep up with changes in relevant policy and procedures associated with the disposition reporting process.
- Simplify the process of correcting errors in the disposition reporting process.
- Provide user views of the process that help identify the following:
- Responsibility for disposing of the charge(s);
- The ability to see all charges associated with a given case, regardless of who is handling a specific charge;
- Aging of dispositions in need of completion;
- Status of a given charge's disposition;
- The success of the agency's disposition reporting Year To Date progress;
- Drive the escalation of dispositions that are not processed within the State's targeted timeframes and meet performance standards;
- Provide a unified way to issue and track charge counts across multiple agencies;
- Eliminate the need to go back into manual files and make phone calls to resolve problems;
- Remove the ambiguity in the disposition reporting process through the use of automated workflows driven by business rules designed to rapidly and completely finish the process.

IBM believes that anything less than a comprehensive and complete automated solution would be tantamount to publishing documents with a typewriter rather than computers in 2002. Our recommendations do not negate the need for the kinds of capabilities that exists today, but rather they seek to integrate these capabilities into a cohesive system and supporting processes that will drive a high degree of success in disposition reporting for the State.

Limitations of an Arrest-based System

The existing system is arrest-based, and this establishes the first point of departure from the business objectives of the disposition reporting process—to apply dispositions to all charges brought against people in Arizona for which dispositions are required. Because charges may be brought against an individual prior to or without a physical arrest and subsequent booking, many cases are not initiated with the disposition report form and ACCH record (the byproduct of booking, fingerprinting and identification processes) being generated.



Booking and AFIS Identification Completed?

	Booking/Live Scan	Deferred
Arrests	Usually	Maybe
Cite/Release	No	Yes
Summons	No	Yes
Other	No	Yes

Figure 2: Example Completed Identification by Type

Jail overcrowding and reduced manpower have taken their toll over the last couple of decades. Many law enforcement agencies nationwide have adopted cite/release policies to maximize officer availability in the field to respond to calls for service. Remember, some city police agencies in Arizona reported that as much as 65% of their arrests were cite/release. The figure below illustrates the optimistic results of the existing arrest-based system on collection of criminal history data:

The pie chart in Figure 2 provides an example of how an arrest-based process may allow considerable charges to miss the disposition process. IBM's study revealed that the current process was more subject to Disposition Reports falling through the cracks when the booking and fingerprinting was to be performed after the fact of the actual disposition of such charges. The chart presumes that an agency is making arrests on 100% of their charges that are subject to disposition reporting based on the fact that charges are made. As some 50% or more of these charges would likely come about from cite/release situations, summons and other scenarios like in-custody prosecutions, the cases involving actual physical arrests and fingerprint identifications decline accordingly. In those cases where fingerprint identification must occur after the fact, the lack of a centralized way to monitor and thereby drive compliance with the courts' orders for bookings leaves these cases in jeopardy of being left incomplete, or never making into the system at all.

Description of Operational Systems

Systems supporting the administration of criminal justice within the state of Arizona are divided by functionality and agency. At the State level, fingerprint identification from the Arizona Automated Fingerprint Identification System and Criminal History Record Information from the Arizona Computerized Criminal History systems interact with the process of disposing felony offenses and certain misdemeanors, including domestic violence and sex- related crimes, as well as Driving Under the Influence.

County criminal justice processes are generally supported by functionally specific, disparate systems aligned by agency. While a number of the participating agencies share common applications, many are unique to the agency. Across the state's 15 counties, 12 law enforcement agencies use Spillman Public Safety Solutions and 147of the state's 185 courts use the AZTEC system. Of the participating agencies in the 9 counties reviewed, the following commonalties were observed:

- AZTEC Court Case and Cash Management System – all Courts in 7 Counties
- Spillman Public Safety Solutions – 5 Sheriff's Offices
- Constellation Damion Case Management System – 2 County Attorney Offices

The disposition of felonies, driving under the influence, and domestic violence related misdemeanors at the agency level is supported by the computer systems operated by each agency and interlocked with other agencies by Disposition Reporting. The Disposition Report (DR) is completed manually except in the Coconino County Courts and Peoria Courts where an interface from the AZTEC system into the DPS ACCH is in the pilot phase. This interface allows Court personnel to complete a disposition entry once, in the AZTEC system. The AZTEC system extracts the data and sends the final disposition information to the DPS Arizona Computerized Criminal History to update the Criminal History Record Information (CHRI). The ability to capture information once at the source, and use it throughout the criminal justice process without re-entering information as it crosses agency lines is not evident in any county participating in this engagement. Today copies are made of the Disposition Report form to facilitate simultaneous movement of the form for asynchronous processing of different charges. Upon receipt of the form or copy, agency personnel re-enter the information into their agency's information system. To move information without re-keying will require the designation and adoption of standards for data exchange between agencies and systems.

Most local criminal justice agency client systems are connected to their county's network and have high-speed access to other users on their local network. The connectivity of the county's network to the state varies by county and agency. Some local criminal justice agencies' only connection to the DPS ACCH is using a personal computer emulating a 3270-style terminal on a 9600bps link.

Status of Initiatives

Disposition Reporting Pilots

With regard to disposition reporting, two initiatives are underway to provide a batch upload interface for reporting disposition of charges using the AOC's AZTEC system to feed disposition report information to the ACCH system at DPS. This initiative is currently in the pilot phase at Coconino County Courts and in the City of Peoria Courts. The interface provides a batch-oriented submission of disposition information for processing by the DPS system. Upon completion of edit checks, any errors are reported as exceptions back to the submitting court. The DPS is planning the conversion of the underlying database structure for ACCH from ADABAS to Universal Database (UDB). Another initiative is to update the AZTEC system supporting two thirds of all Arizona Courts to a new release

with additional functionality. In addition, two counties have established their own focus and systems to facilitate integration of criminal justice systems with their counties:

- Maricopa County ICJIS
- Coconino County ICJIS

In addition to the county-level ICJIS initiatives above, Pima County has also begun sharing data between the Sheriff's Office and their courts. The courts in Pima County have established plans that mirror AOC objectives for case processing performance that will ultimately provide the timeliness and predictability that is essential to integrating justice information statewide.

The City of Yuma is moving ahead with mobile data initiatives. Yuma's project might include wireless access to the portal and pre-booking information for a pilot in the future.

Gila County and Phoenix Municipal courts stood out as examples of those agencies that had prioritized disposition reporting and resolving errors with rejected reports. Coconino County Attorney's Office initiated new processes to complete "Not File" dispositions and send them to DPS as a result of their participation in this study. The Pinal County Attorney's Office extremely insightful and immediately drove participation in this process to the top of their organization. These agencies and others clearly exemplify the spirit of cooperation and sense of priority needed to overcome the problems with disposition reporting.

Police Departments in both Tucson and Phoenix have introduced COPLINK™ into their plans for the future.

COPLINK™ is a feature-rich, web-enabled and browser-based investigative solution that, to quote the company web site, "connects and detects case-related clues buried in unconnected databases across technical and jurisdictional boundaries." Knowledge Computing Corporation (KCC) developed COPLINK™. From a law enforcement perspective, COPLINK™ is what integrated justice is all about—solving crimes to prosecute the offenders.

COPLINK™ is offered in three integrated components:

- Connect
- Detect
- Admin

COPLINK™ Connect "links" people, incidents, vehicles, organizations (gangs, etc.), weapons, property, and locations from an agency's databases, or from federated databases such as the data warehouse proposed in this study. The COPLINK™ Connect premise is simply: Connect, Search, and Solve.

COPLINK™ Detect is law enforcement-oriented data mining designed to mimic the human investigative process. Detect represents the promise of knowledge management and data discovery solutions for law enforcement agencies who wish to harvest and reuse the vast experience of their seasoned officers and investigators, making their thought processes available to others with varying levels of experience and expertise.

COPLINK™ Admin provides a level of security and user management features designed to prevent unauthorized use and access to the system. Coupled with other state-approved security measures, Admin may provide useful controls for local user management tasks. Comprehensive testing and evaluation of all COPLINK™ modules, including code reviews and an examination of practical and cost-effective licensing plans, will establish the viability and readiness of COPLINK™ to be incorporated into a statewide solution that will be used by thousands of law enforcement and criminal justice practitioners in the state.

COPLINK™ is designed to run on an agency's intranet, and should be extensible to extranet applications as well to be shared by multiple agencies.

As of our review and introductions to COPLINK™, IBM recommends that COPLINK™ be strongly considered and thoroughly evaluated for use as the front-end query for the statewide data warehouse recommended in this report. (*See www.coplinkconnect.com*)

Functional Improvements Needed

In order to achieve the degree of accuracy and completeness desired for disposition reporting, as well as the long-term vision of statewide integration of it's justice enterprise, Arizona must do more than rework existing processes, or adding new ones.

Across the nation, efforts to integrate the justice community have often times failed to achieve real integration. The reasons are many, but the most common is that the culture of the criminal justice agencies has been steeped in autonomy. Independence exists where interdependence is needed, and, as a result, agencies have evolved to handle their piece of the work their way. A plethora of boutique vendors have emerged with a variety of software solutions that do the same job many different ways. Underlying this buffet of Records Management Systems, Case Management Systems and Tracking Systems is an even broader variety of database technologies, hardware and software systems, and proprietary solutions, each purporting to be "open" in nature. This sets the stage for complex and costly integration efforts requiring flawless execution by vendors who generally don't work together.

In the mix, there are also a considerable number of agencies that have taken hold of their own destiny and built or acquired systems that they operate and maintain. The benefits of this can be summarized as control. The downside is that these agencies all too often develop support organizations with product- and solution-specific skills and abilities that may ultimately lead to support and maintenance of the application they have rather than growth and expansion, and embracing new technologies.

In each scenario, agencies are driven inward by their business needs and technology directions. They are increasingly dependent on their vendor, or their own support staffs as they tailor, customize, modify and enhance their business applications.

The business applications can drive considerable process in all of this, and those processes have often evolved from a paper-based history and ideas that were not born of any planned integration. As such, the processes tend to only support the way things have been done in the past with a computer, or perhaps the way things came to be done because of the computer.

Band Aid approaches to integration rarely achieve more than slight improvements. Also, counties differ widely in their abilities to implement the 24 X 7 business processes (e.g., Type 01 fingerprinting, initial appearance, etc.) required to identify every person charged with crimes subject to disposition reporting early in the process. The State of Arizona needs a new approach to doing things that comes directly from a thoughtful view of what needs to be done in order for all of the state's criminal justice agencies to work together. The approach must respect the importance of all contributing agencies to the process overall.

Agency Perspectives

IBM found that all agencies involved in the study had similar definitions of what Integrated Justice means, though some definitions reflected the perspective of the type of agency responding. For instance, one court responder saw integration of justice as being its ability to communicate with other agencies about data they have or need in their case management system. One County Attorney's Office described, "taking disparate criminal justice agencies at varying levels and deciding on definitions of terms to be able to share data between agencies." One County Sheriffs Office defined

integrated justice as, "The sharing of local information for investigative purposes, and forwarding of data for administrative reasons." A municipal police agency responded, "In an integrated justice system, all participants in the criminal justice system have interoperable systems so that all branches can access authorized information regardless of the source. The data transfer must be seamless, and transparent to the user. There must be equal concern and consideration for voice and data communications."

IBM's study resulted in the following high-level definitions of integrated justice based on agency input.

Integrated Justice:

- Is a partnership involving all agencies in the criminal justice enterprise as equal stakeholders;
- Is contributing and consuming data and information;
- Is the sharing of data and information at an appropriate level of detail needed for a stated purpose:
- Locally
- Countywide
- Statewide
- Nationwide
- Is accomplished through interoperability between disparate criminal justice agencies;
- Is secure;
- Involves relevant data and voice;
- Includes the elimination of duplicate efforts to capture data;
- Involves the reuse of data already entered in a system;
- Is reasonable access to information needed from any other agency;
- Includes the ability to push, pull, publish or subscribe to systems and information;
- Is directed by clearly defined and well-understood policies and procedures by a policy organization made up of the involved agencies, supported by a technical committee and standards subcommittee;
- Is fueled by funding that is a permanent part of business, rather than as a one-time expenditure;
- Is enabled through a fair and equitable governance model;
- Is made possible by the willingness, commitment and executive sponsorship of all involved agencies to participate;
- Is a fundamental commitment to the way the entire criminal justice enterprise does business together;
- Requires significant change.

These basic principals can set the tone for a mission statement for the State of Arizona's vision for integrated justice.

Barriers to Integrating Justice

All but a few agencies cited issues of governance, funding and policy as being the most significant bar to integrating the State's justice enterprise. Other agencies cited politics and a history of autonomy and separation being the most significant bar to achieving integrated justice in the State.

IBM would tend to agree with the agency's assessments, but the fact remains that in such a political climate, most of Arizona's criminal justice agencies have come together to pursue the integration of justice, information sharing and collaboration motivated by a commonly accepted view that it is the right thing to do.

This motivation will only go so far. It must be enabled by funding and fair and consistent policy-making and governance in order to be viable over the long haul. In Arizona, agency representatives frequently suggested that some form of financial incentive be given to best compel long-term commitment to reforming the disposition reporting process, and integrating justice information systems throughout the State.

The introduction of more un-funded mandates was foremost on the minds of the agency representatives interviewed. Their concerns undoubtedly echo the sentiments of all agencies throughout the State. During our interviews, IBM learned that existing fee schedules and fines are considerably loaded with special assessments that have developed over the years. Agencies felt that it was unlikely that additional taxes, fines or fee increases could be used to fund the initiatives in this report.

Some agencies recommended that the State provide funding to pay agencies a dollar per disposition report successfully submitted as incentive for and ability to fund needed staffing and equipment to handle the disposition reporting process. Based on a simple extrapolation of past CHRI annual arrest volumes, such funding would require about three million dollars for 2003, and grow to about five million dollars per year by 2010. By the year 2013, the cumulative funding may exceed fifty million dollars. The chart that follows projects this funding based on an average declining rate of arrests overall. The chart does not depict the effects of increased charges being processed as a result of process improvements and the automation recommended in this report.

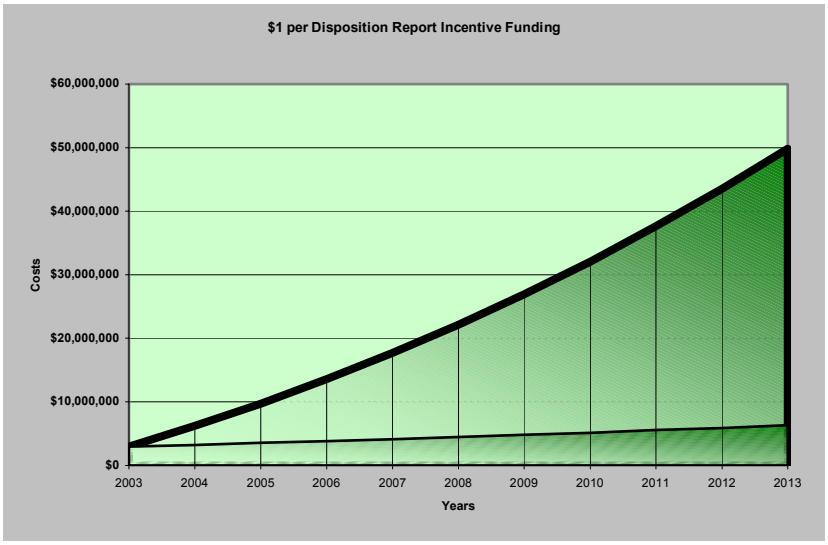


Figure 3: Incentive Funding based on $1 per Disposition Report

Because of the popularity of such financial incentive, IBM recommends that Arizona consider an incentive, even though law requires reporting of dispositions.

Should such incentives be provided, the award of such incentives must be carefully administered by ACJC, and tied to a minimum level of measurable success. Since the federal requirement and State goal for reporting is too low at 55%, IBM recommends that any incentive plan, as well as other grant funding, require that the county of which the agency is a part must be currently maintaining a minimum 75% level of performance in disposition reporting. The State's goal should be no less than 100% going forward, and systems and processes, policy and funding be made available to meet that objective.

From this basis, incentive funding might be targeted specifically at augmenting the agencies information technology capabilities such as funding full-time IT staff, specific projects such as interfacing to county or state criminal justice systems, or recovering the costs of such initiatives. Incentives should be planned to cover a variety of purposes and stratified based on employee populations and prevailing industry wages, etc. Also, any such incentive for the submitting agencies should include a portion of the incentive to DPS in order to offset their part in the program and ongoing system upgrades and enhancements. This would better enable the State to forecast the costs of such an incentive plan over several years, and to contain that costs while prompting a healthy level of competition among the agencies to win their share of the funding through their efforts to integrate justice information systems in the State.

Process Improvements Needed for Reporting Dispositions

Arizona agencies involved in the disposition reporting process need to be able to:

Access/Security:

- Login and logout of the disposition report tracking system.
- Perform only those tasks permitted for their user profile and security level.

Automated Process Improvements

- Initiate the Disposition Report process for any applicable charges that will ultimately require a final disposition by live scan or by elective creation of a tracking system record.
- Track and manage their part of the disposition reporting process from start to finish.
- Track and manage pre-identification Disposition Reports for cite/release, summons and other non-arrest/booking scenarios in which charges are brought against people.
- Check to see active PCNs for individuals by name and other demographic information.
- Send and receive information on problems and issues that come up along the way during the disposition reporting process.
- Quickly check to see Disposition Reports received that require work.
- Move Disposition Reports through a logical path from agency to agency towards completion.
- Assign a final disposition charge(s) as is needed.
- Split charges (counts) between multiple prosecutors and courts from a single Disposition Report.

Interoperability

- Complete dispositions for multiple PCNs with a single live scan event.
- Enter data in the disposition reporting process as a byproduct of entering data into their productions case management and case tracking systems.
- Maintain the order (sequence) of charges throughout the process.
- Determine the count number for additional charges that may be amended to a disposition report (PCN).
- See the work that has been done on the Disposition Report by constituent agencies.
- Declare that their work on a given section of the disposition report is complete (Done).
- Get feedback from the process that their work has been submitted successfully

Problem Resolution

- Quickly identify those Disposition Reports that have not been processed successfully.
- Receive rejected dispositions and DPS transmittals on-line.
- Correct disposition report errors on-screen and resubmit them for approval/acceptance.
- See those persons (and their records) who have been ordered to report for booking, but who have not complied.

Measurement, Feedback and Training

- Check their agency's success rate for submission of Disposition Reports.
- Be trained on-line where possible.
- Access system help, rules and procedures on-line.
- Certify for system access on-line where possible.
- Apply for TOC IDs on-line.

Other Useful Functionality

- Print a snapshot of the Disposition Report form at any stage of the process, time, date and name stamped by the system.
- Query the pre-booking records as needed, restricted by user profile and security.
- Query any agency's in-progress and completed Disposition Reports without restriction.
- Assign missing agency numbers to records where not provided via a system interface or other automated update.
- Recall and delete tracking system Pre-Booking records prior to PCN generation, or other agency data entry or update of a Disposition Report.
- Simultaneously perform data entry on the same charge item (same PCN and charge in the database (count) by multiple users.
- Audit the disposition reporting tracking system for edit history, status, user access, and processing history, including printing of Disposition Report form copies.

- Produce agency exceptions reports including corrective action required by the agency.
- Age by days each charge activity or charge event from the date of final disposition using a new 72-hour standard to identify tardy Disposition Reports. Since Disposition Reports will be updated in a common shared system, the existing 40-day standard would be obsolete. (The court's case completion guidelines of 90% in 100 days, and associated handling of data entry will influence Performance where applicable).
- View and print screens from other agencies Disposition Reports and charge related data within accepted security parameters.
- Track the individual charges associated with cases returned after Appellate Review and to submit updates to DPS via the tracking system.
- To use their own agency case numbers to query the statewide tracking system about Disposition Reports, charges or persons.
- Track the transfer of Disposition Reports and charges from the initial agency involved to conclusion.
- Add a comment to a Disposition Report or charge to provide important information to other criminal justice agencies about that Disposition Report or charge.
- View all Disposition Reports and charges in progress for a given person based on common SID.
- View all pre-booking records and charges in progress for a given person based on common demographic data (e.g., name, DOB, height, weight, hair and eyes), and numbers like social security, and ID issued by the Motor Vehicle Department.
- View court sentencing results for completed Disposition Reports and charges in the tracking system.

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Recommended Future Environment

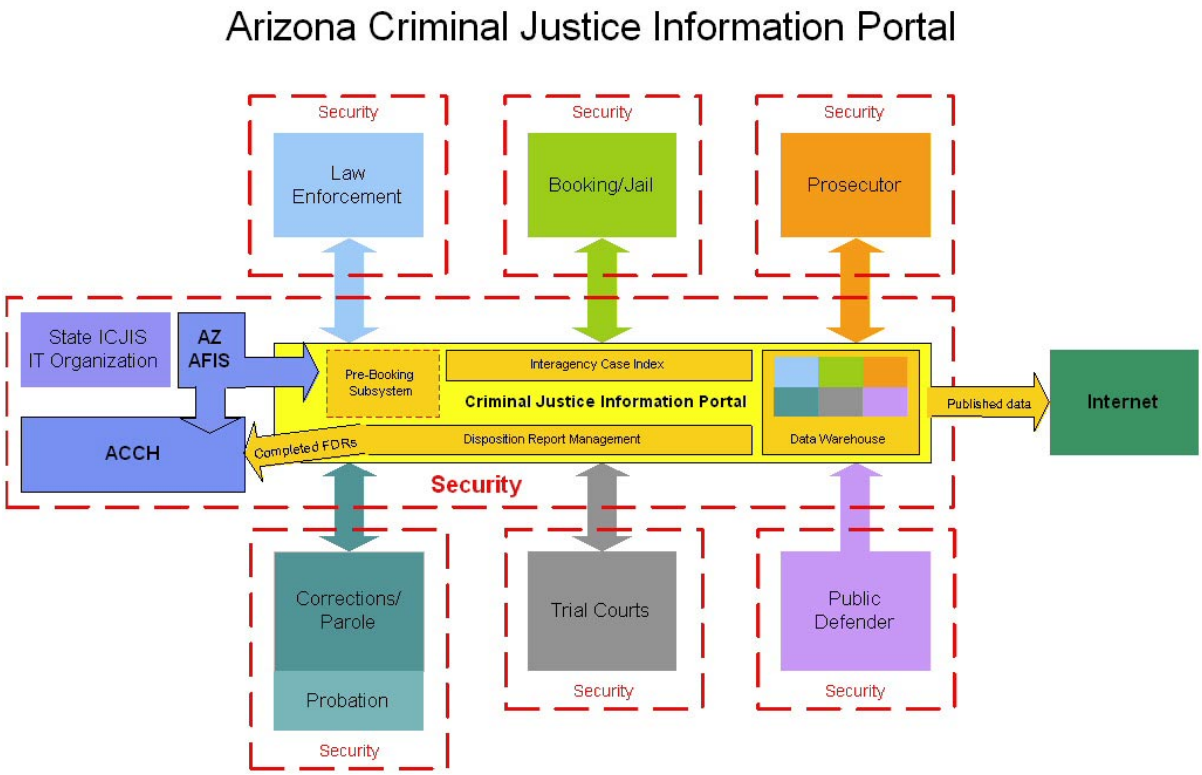

Figure 4: Arizona Criminal Justice Information Portal (ACJIP)

Recommendations, Critical Issues and Success Factors

Arizona Criminal Justice Information Portal (ACJIP)

As one of the most important business processes related to interagency data sharing, disposition reporting for felony charges and misdemeanors charges associated with domestic violence and Driving Under the Influence is uniquely beneficial and strategic to Arizona's statewide vision of integrated justice. Required by the Arizona Revised Statutes, Section 41-1751, the disposition reporting process is the basis for Criminal History Record Information (CHRI) maintained in the Arizona Computerized Criminal History (ACCH). Completion of the final Disposition Report spans multiple agencies in the criminal justice process, and involves those agencies' internal processes and systems as well. In most cases today, a paper form moves from the originating agency to a disposing agency such as the County Attorney or the Courts attached to other paperwork. With multiple charges including felony, misdemeanor and civil charges, the form is copied and distributed for processing simultaneously by multiple disposing agencies. The form's progression may also be bi-directional as it is returned to an agency for further processing. The ability to locate the form and associate the form to the correct case and documentation is critical to successful completion of the disposition reporting process.

Access At Any Point

The probability of successful completion can be improved by implementing centralized access to the form and its content. An automated and secure method of access will eliminate the physical

movement that renders the current form information inaccessible to all agencies other than the agency with physical possession. If the form is automated and accessible, the "location" of the form and its current status can be viewed by any agency with the appropriate authorization. An agency can act on information received with efficiency and accuracy.

High Level Workflow Diagrams

The following diagram reflects a high level view of the recommended disposition reporting process using automation to remedy problems associated with the current manual processes. The diagram introduces a Criminal Justice Information Portal for Arizona criminal justice agencies (ACJIP). The web-based portal is part of ACJC's long term Integrated Criminal Justice Information System initiative to integrate disparate agency information along shared business process points using technology. The Portal provides a common link to the interagency services specified in the yellow area, accessible using a web browser client. The Portal's access to services can be expanded in the future as other agencies provide web-based access to their technology-based services.

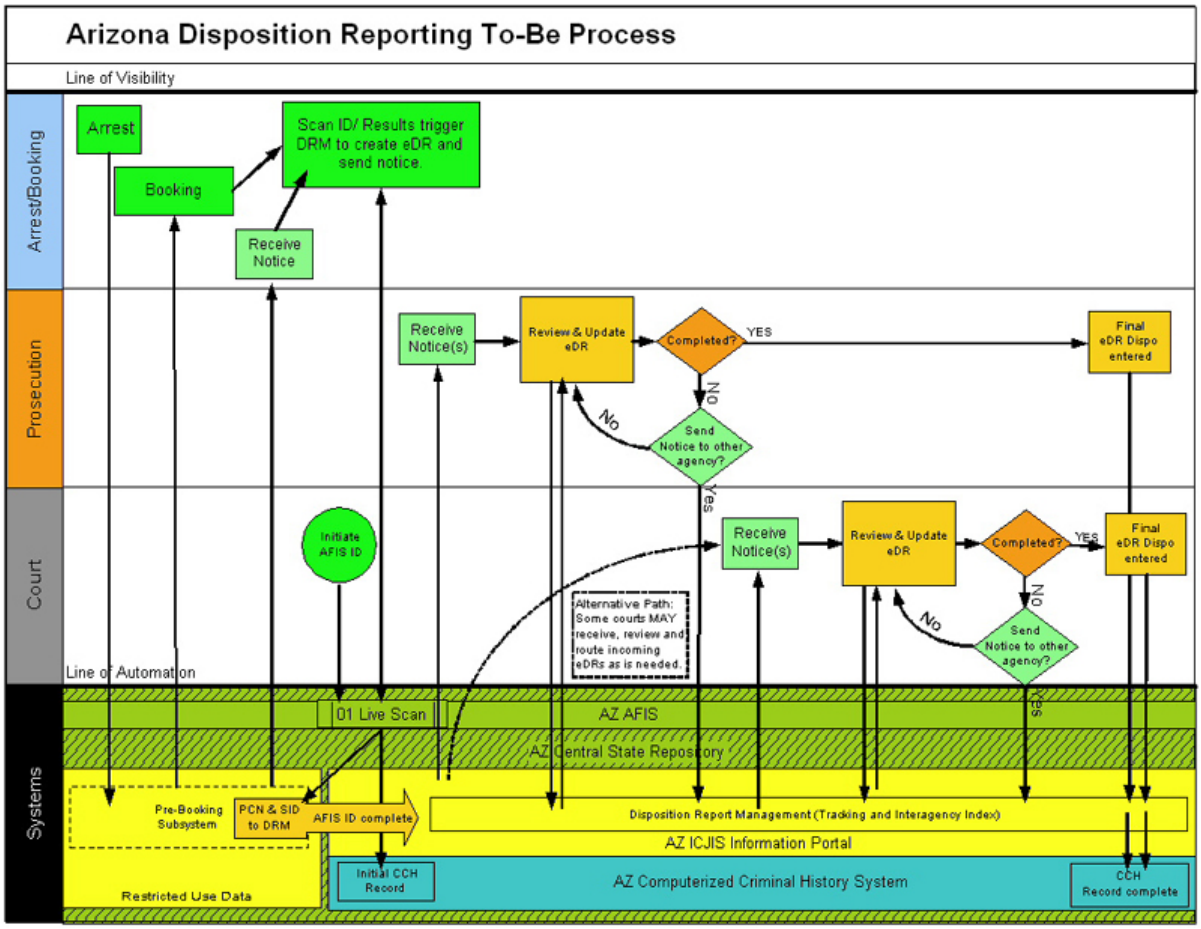

Figure 5: To-Be Process for Automated Disposition Report Tracking

Criminal justice services provided via the Portal will complement services currently provided by the Arizona Centralized State Repository (CSR). The Arizona Department of Public Safety (DPS) CSR currently supports the Arizona Computerized Criminal History (ACCH) system and the Arizona

Automated Fingerprint Identification System (AZAFIS). ACCH will continue to maintain the Criminal History Record Information. The new solution design will add a tracking and workflow management components for Disposition Reporting: Disposition Report Management (DRM), Pre-Booking Management, Interagency Index, and the Disposition Reporting Scorecard.

Currently, DPS has no web-based applications and the technology underlying the existing systems will have to be interfaced to the new tracking system. This back-end integration effort will be a major undertaking for DPS, but they expect their greatest challenge to be significant paradigm shift for the support organization as a whole.

Disposition Report Management

Disposition Report Management provides the tracking and workflow support automating the Disposition Report. Upon results from AZAFIS, the ACCH system will send DRM the open criminal history record information to initiate an electronic version of the Disposition Report in the DRM database rather than only printing the form at the booking facility. The initial electronic Disposition Report may differ from the data contained in the Pre-Booking Management database after the information has been synchronized with the ACCH system's Criminal History Record Information using the AZAFIS interface. This electronic form will be active, printable, and accessible within the DRM system until the disposition is final.

When an AZAFIS Live scan or Image Scanner event is completed, the results are sent back to Disposition Report Management and compared to all electronic Disposition Report instances across all county databases awaiting positive identification. The results of this comparison are presented to the user showing potential PCN matches. The user will then select the instances (PCN's) to associate with the identification results and the AZAFIS scan results will be applied to all selected DR's (instances).

Disposing of Individual Charges: Advantages Over Paper

The electronic Disposition Report will be accessible by multiple agencies simultaneously. DRM will edit and validate entries into the electronic Disposition Report, provide multiple views of the electronic Disposition Reports and their status in DRM provide secured access and edit capabilities to restrict unauthorized use of the electronic Disposition Reports, and provide appropriate routing based on the form content. The DRM will support routing the electronic Disposition Reports to multiple courts simultaneously for disposing of specific counts. DRM will support receipt of disposition reporting data from Arizona court case management systems using the standard established for data exchange. DRM will support submitting the electronic Disposition Reports to the CSR for final disposing by multiple agencies multiple times until all counts on the form are disposed. The advantage here is that charges can then be disposed of independent of other charges solving one of the key problems DPS has in getting data into ACCH. DRM will also support the exchange of data with the Arizona Department of Corrections system to provide final sentencing and parole information from the electronic Disposition Report.

The DRM will also support completion of the Officer's Affidavit of Probable Cause (Form 4) as an electronic form supplement to the electronic Disposition Report, along with printing the Disposition Report at any time during the process. Print support will include any Disposition Report Supplementals necessary to recreate the original paper based format.

Interagency Index

The information within active electronic Disposition Report forms in DRM, criminal history record information opened within the ACCH prior to DRM (the old, outstanding disposition report records), and demographic data from AZAFIS will be associated in a database to create an Interagency Index. The Interagency Index will provide criminal justice agencies the ability to locate pending disposition reports using search criteria beyond the standard Process Control Number (PCN). Data elements will include State Identification Numbers (SID), Originating Agency Identifiers (ORI), Arizona Revised Statutes (ARS) numbers, Agency case numbers, Defendant Name or Date of Birth, and other information available in the open records. Searching the database will be facilitated by the use of a query and reporting tool.

Pre-Booking Management

In addition to initiating the electronic Disposition Report from the arrest and booking process, the Portal will include a tracking and notification system for instances where fingerprinting and/or Disposition Report is needed for a defendant with charges stemming from an indictment, a cite/release citation, inmate prosecution, or a summons issuance.

Pre-Booking Management will be used to capture the court-generated information for these requests when sent by the Court or Prosecutor's Case Management System based on a predetermined data exchange standard. These data exchange standards are to be developed by a proposed Standards Committee discussed later in this document. A request for fingerprinting will be initiated and notification will be sent to the agency supporting the booking process for that court. Once the defendant is fingerprinted, a PCN is generated from AZAFIS or assigned manually. The AZAFIS results trigger ACCH to open the Criminal History Record and initiate the electronic Disposition Report in DRM.

It is important to keep in mind that the Pre-Booking Management component is meant to support the real-world process that currently exists. In the existing process, people move through the system without benefit of positive identification through AZ AFIS. These people are identified, prior to booking, by demographic information including their name, date of birth, social security number, race, sex, hair and eye color, and other information like the address given.

The Pre-Booking Management component is not intended to make loose correlations about identification of offenders, or to be used in lieu of ACCH for criminal history information. By its very nature, it will lack the required fingerprint identification criteria required to qualify as a criminal history record. Based on the input of the Maricopa County ICJIS group, the Pre-Booking Management area is to be restricted for use only by law enforcement and prosecution agencies involved in the process, and is to be secured from others in order to prevent the inadvertent use of pre-booking information by others who must not consider the data in their decision making (e.g., judges). Instead, it will provide a means of tracking charges that will ultimately become criminal history records, prior to the time that each discrete record is completed by fingerprinting and transferred to ACCH. Currently, this information, though stored in various agency systems, is not correlated to ACCH because the process does not begin with booking, thus the type 01 fingerprinting required to create an initial entry in ACCH.

When fingerprints are captured manually using the ink and roll method, a new electronic Disposition Report can be initiated from Pre-Booking Management. The booking officer enters the PCN from the barcode label affixed to the Arrest Fingerprint Card (AFC) along with the other pre-booking information as needed into the entry that corresponds to the arrest event. The officer will then print a copy of the electronic Disposition Report and send it with the AFC to the Arizona Central State

Repository at DPS. Once the information from Pre-Booking Management has a PCN, it moves to Disposition Reporting Management as an open instance awaiting positive identification.

Pre-Booking Management will provide the ability for an officer to enter the Arrest Fingerprint Card information and initiate database searches to facilitate identification after arrest and prior to booking at the detention facility.

Pre-Booking Management will also have a documented data exchange standard to move information entered into Pre-Booking Management to a law enforcement agency's automated booking system and/or to the Arrest Fingerprint Card to be used by AZAFIS. Pre-Booking Management will also assist County Attorneys and Municipal Prosecutors in resource planning and scheduling by providing access to case awaiting identification.

Disposition Reporting Scorecard

The Disposition Reporting Scorecard will provide a Year-To-Date (YTD) view of an agency's rate of completion for the charges they initiate and participate in. The Scorecard will provide relevant statistical data for measuring performance and illuminating areas in need of improvement or change. During the study, IBM found that some agencies were aware of their progress in disposition reporting, but that their view was largely a collective, multi-year backlog, often described in terms of the number of boxes it took to house flawed Disposition Report forms returned by DPS.

Scorecard agency views should include:

- Summary Open Pre-Booking Charges YTD – Law Enforcement and Prosecutor Only
- Summary Pre-Booking Charge Transfers to DRM YTD – Law Enforcement and Prosecutor Only
- Summary Open PCN Charges YTD
- Summary Submitted PCN Charges YTD
- Summary Rejected PCN Charges YTD
- Summary Resubmitted PCN Charges Pending YTD
- Summary PCN Charges in Manual Review YTD
- Agency YTD Snapshot, including:
- Percent of charge dispositions completed
- Percent of charge dispositions open
- Percent of charge dispositions rejected
- Percent of charge dispositions by type:
- Felony
- Domestic Violence
- Driving Under the Influence
- Other

Each of the Scorecard's columns might be clicked to alter the sorting criteria on which a given view is based. For instance, clicking the Charge column header might toggle the view to a listing sorted alphabetically by the charge. Clicking a Date header would influence the system similarly, but by date.

The Scorecard will provide much needed feedback in a convenient online format with which authorized users can self-serve to check their performance. The scorecard might provide a comparison to a mean rate of performance by all State agencies to provide a relative performance benchmark.

The Scorecard will enable agencies to quickly assess the numbers of charges being handled each day, month, and year, and allow them to get the arms around the process to plan for staffing needs and time commitments, training needs and policy and usage issues, and other important facts to make better decisions. The Scorecard will also create a statewide common vernacular for performance measurement of the disposition reporting process as a whole.

Data Exchange

Data exchange standards are critical to the ability to integrate disparate systems based on different technologies and data schemas. The ability to enter the information once and reuse it in subsequent steps reduces the length of time required for processing and the potential for human error. The following types of data exchanges have been identified as enhancing the functionality of the Portal:

1. Pre-Booking information to Agency Booking and/or AZAFIS
2. AZAFIS demographic information results from scan to DRM (for the Interagency Index)
3. ACCH Initial Disposition Report information to DRM (and Interagency Index)
4. Court or County Attorney Case Management to Pre-Booking Management
5. Court Case Management to DRM (extends the Courts to ACCH interface standard piloted in Coconino County and Peoria)
6. DRM Report Final Disposition (by Count) to ACCH
7. DRM Report Final Disposition to Department of Corrections System

Agencies with varying degrees of automation, support, skilled resources and workload will determine the level of automated data exchange for that agency. Some agencies may choose to key-in information into Pre-Booking Management and Disposition Report Management for the first release of the new system. A phased approach for completing the integration of data is recommended. The new system should provide a user interface for keying information into the system or accepting the information electronically as defined by the data exchange types and format standards recommended.

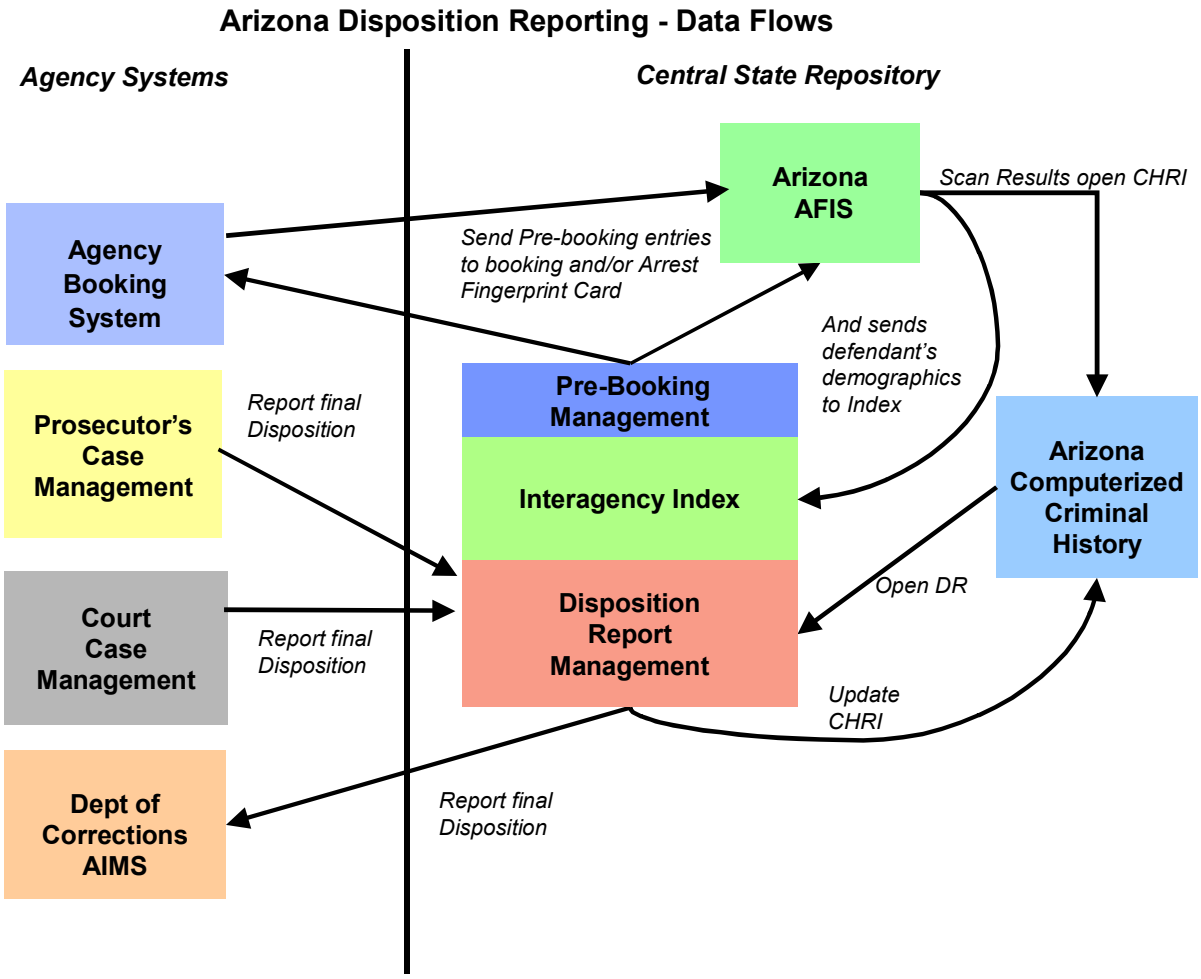

Figure 6: Interagency Data Flows

Technology Directions

The architecture of the envisioned system is based on open systems standards already in practice within Arizona State agencies. The primary access to the various system functions will be accomplished via a secured portal to a web-based system. The Arizona Criminal Justice Information Portal will be accessible using a standard web browser client. The Portal will provide a customized view of available services based on the user's profile to define the user's authority, preferences, environmental settings and functional capability within the system. Links to Disposition Report Management, the Pre-Booking Management, the Interagency Index, the Disposition Reporting Scorecard, ACJC News and DPS Bulletins are possible services accessible via the Arizona Criminal Justice Information Portal.

The use of an e-government architecture as the basis for the new system will facilitate a central point of administration and support while providing access for users in remote locations of Arizona with little or no direct connectivity to the state's network of systems.

The following diagram depicts the architecture of the system at a conceptual level. Detailed architectural decisions made during the design phase will refine the concept as the system architecture for reference during development of the new system.

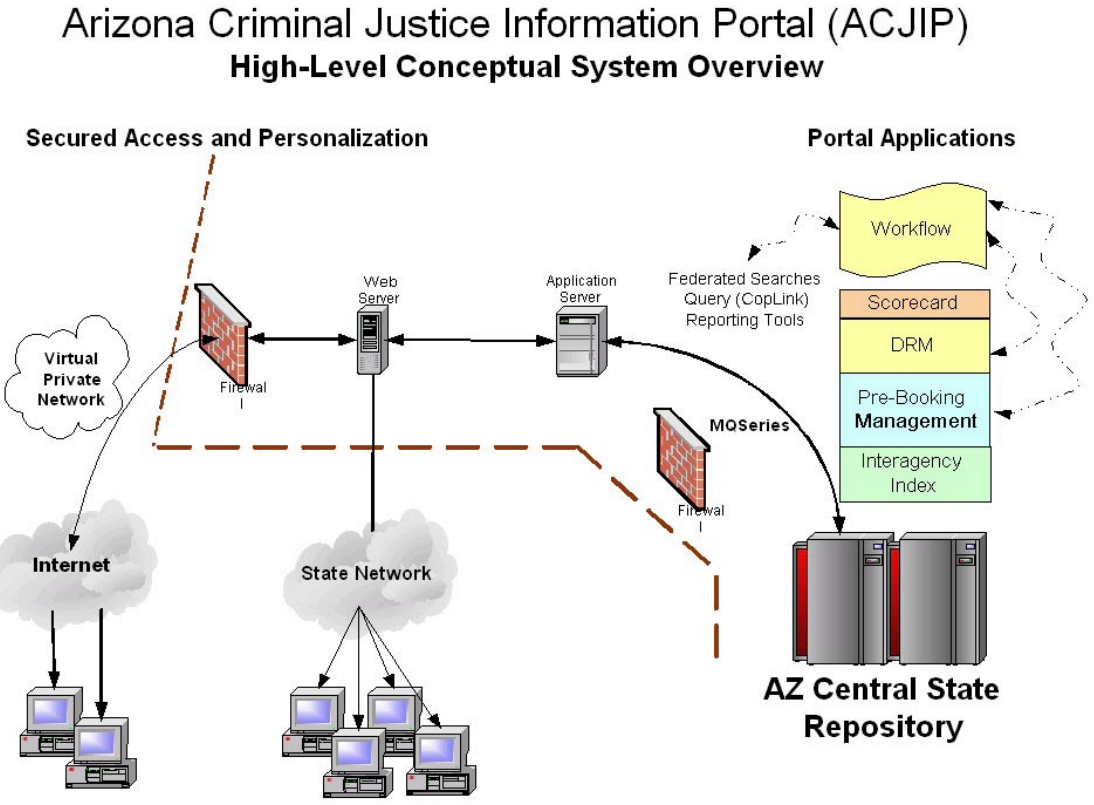

Figure 7: Conceptual Architecture

The physical diagram describes key physical components of the solution design and their relationship to the services provided by the solution. The diagram also serves to illustrate the connectivity of users to the services. Using a web browser client on the user's workstation allows access through the State's secure intranet or by using technology like a Virtual Private Network (VPN) connection for remote users who have limited or no access to the State of Arizona intranet. VPN provides a method of securing the Criminal Justice Information Portal from unauthorized web users. There may be other solutions that allow for secure remote access to the portal as well, but do not carry the requirement for special software on client PCs, potentially lowering the cost of maintenance and upkeep. (See more on VPN in Appendix B). The Transaction Manager will centralize transaction management, connectivity, streaming, and parsing of data exchanges with data sources at various agencies. The Transaction Manager provides simultaneous access to multiple remote and local data sources, enables synchronous and asynchronous requests, and assures delivery between local and remote message servers using persistent queues.

Disposition Record Management and the Interagency Index will work with data contained in relational databases segmented by County. The segmented databases will be linked in a logical view to create the Interagency Index. Extracting data from open entries in the ACCH system will create additional data elements for the index. The Interagency Index will be used to facilitate disposition

reporting for the "aged disposition reports" created prior to the DRM. The Disposition Report Management Component will be closely linked to existing systems. The DRM will receive initial entries from Live Scan identification process results received from AZAFIS. AZAFIS demographic information will also be used to develop data elements in the Interagency Index.

The figure describes the primary software components supporting the Conceptual Architecture of the solution.

Criminal Justice Information Portal

Color-coding maps components (Left) to descriptions (Right).

Central Repository-based Tracking System Components	Component Descriptions
Messaging & Integration	**Messaging and Integration is a combination of tools and custom application coding**
Pre-Booking Management	**Pre-Booking Management is part of a custom application using a form oriented interface and workflow**
Disposition Reporting Management (Includingbv Scorecard)	**DRM is part of a custom application using a form oriented interface and workflow**
Query & Reporting Tool(s)	**Query and Reporting Tools are available as a "Common Off-The-Shelf" (COTS) software applications**
Interagency Index	**The Interagency Index is a relational database with Advanced Search access**
Web-Enabled Entry Point	**The Web-enabled Entry Point provides a portal to the application, integration of data sources, a unified set of API's and an interface layer to isolate the portal applications from the data repository**
Transaction-Enabled eBusiness Platform	**The e-business Platform extends the application to the web and provides security and personalization**

Criminal Justice Information Portal

Color-coding maps components (Left) to descriptions (Right).

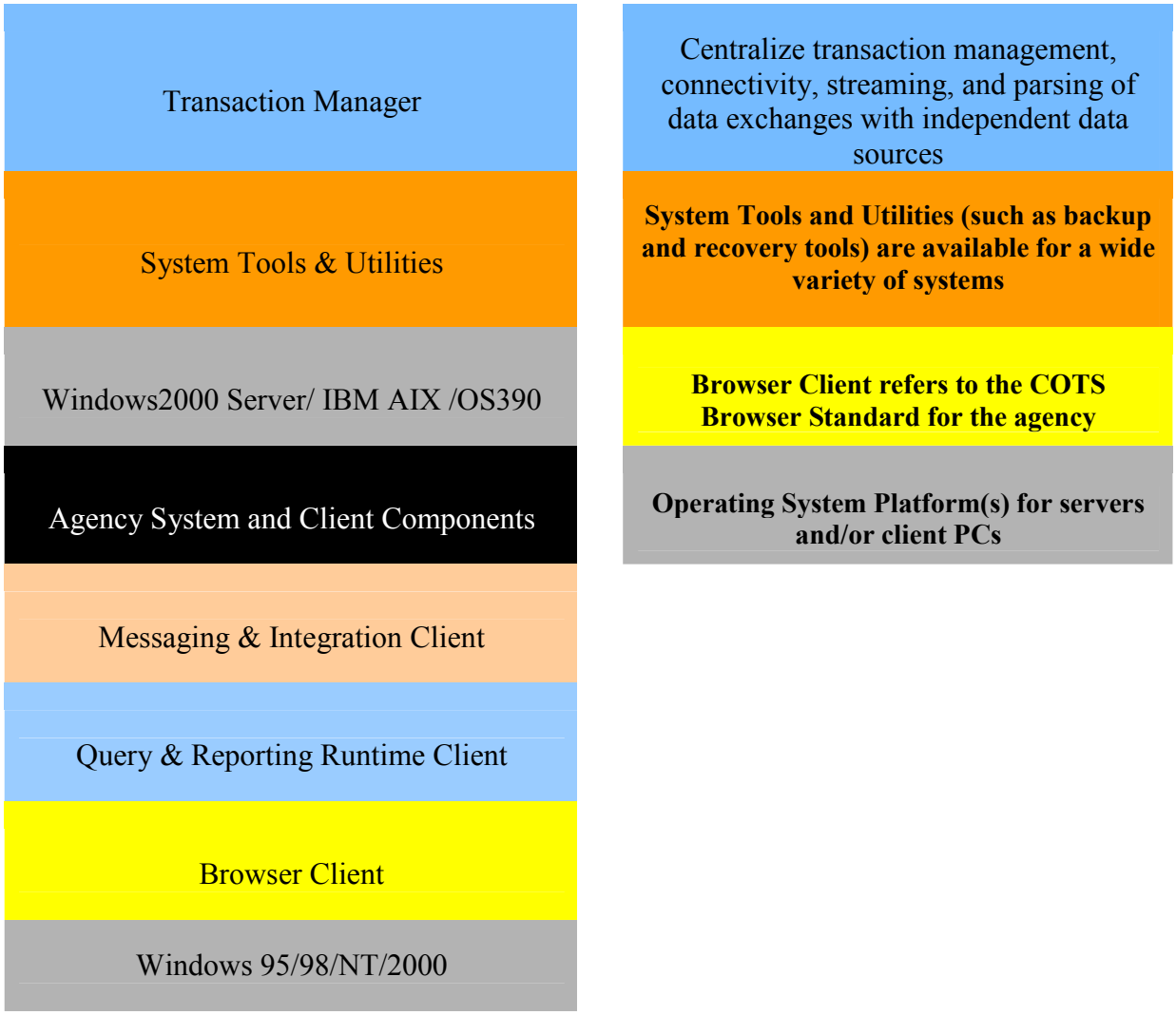

Figure 8: Conceptual Architecture Components

High Level Implementation Schedule

The implementation of the Arizona Criminal Justice Portal will align with the methodology used to develop the system. Requirements for the Portal and the services that it will support must be gathered, documented and prioritized. A thorough review of the available customer resources such as tools, skills, applications and infrastructure must be conducted and analyzed against the requirements of the new solution design, gaps identified, and architectural decisions made. Once the solution outline is completed and documented, the design phase of the project begins. The following outline depicts a typical high-level project plan for the first release of a custom developed solution. The

solution will typically be enhanced by additional iterations of the micro design, build cycle and deployment phases. The duration of each phase will be dependent on the number of services and level of functionality specified for the release.

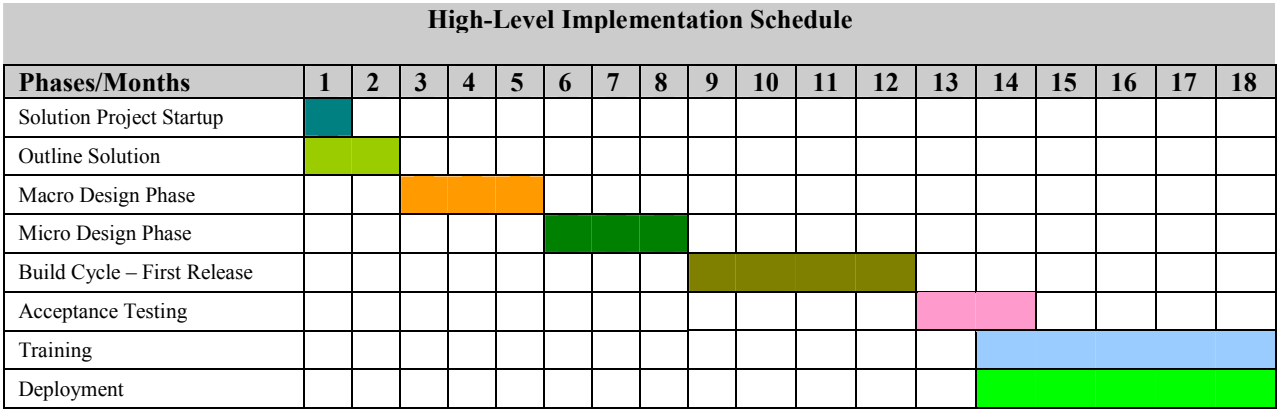

Figure 9: High-Level Implementation Schedule for Initial Application

Solution Outline Phase

The objective of this task is to develop an outline of the current environment and functional and non-functional requirements and to formulate an outline of the solution and the business processes to be supported.

Subtasks typically included are:

1. Review the current and future technical environments, including desktop, server, and network and interfacing systems' capabilities;
2. Outline solution requirements and user profiles;
3. Outline application model to define the major classes, subsystems and relationships of the components to be included in the new applications;
4. Outline solution architecture including an assessment of the solution's ability to meet the business and non-functional requirements and to enable an assessment of the viability and risks in implementing and deploying the systems;
5. Assess the business impact of introducing the new systems, in terms of the need for, the readiness and the extent of organizational change and conduct new business process validation;
6. Outline solution strategy, including release plans, usability design, training and user support, deployment plan, system management plan, configuration management plan and test strategy, and refine the cost/benefit analysis;
7. Outline training requirements by conducting an analysis of resources and skills;
8. Confirm solution outline and baseline project plans.

Macro Design

This task is to develop a robust architectural framework upon which to build the releases of the system.

Subtasks typically included are:

1. Refine requirements and application model, which builds upon the work conducted in the Solution Outline task, adding a greater level of detail;
2. Design the application model, which defines how the application will be structured and how the components will communicate with each other;
3. Design the operational model, which defines the infrastructure needed and how the components are distributed;
4. Design the user interfaces;
5. Design solution plans, including the test plan, training and user support plan, and the deployment plan, to an executable level of detail;
6. Build development environment;
7. Design test specifications, including the test architecture, elements, approach, data and expected results. This subtask also defines the hardware, software, processes and tools required to set up, operate and maintain the test environment infrastructure.

Micro Design

The objective of this task is to prepare for the build cycle of a specific release of the system by driving the architecture and design to a release-specific and implementation platform level.

Subtasks typically included are:

1. Detail requirements and application model, to complete the requirements and modeling components of a release;
2. Refine architecture model, to refine the architecture model developed in Macro Design, and expand it to the level of detail required to implement the release;
3. Perform static testing, using walk-throughs, prototyping, and workshops;
4. Detail the user interfaces to a level required to implement the release;
5. Define training and support specifications for the release;
6. Define physical application model for a specific platform design;
7. Plan system development to develop guidelines and procedures for the programming steps.

Build Cycle

The objective of this task is to develop and perform system test for one CMS release, and to create the plans for system deployment.

Subtasks typically included are:

1. Develop support materials, including end user training materials, user support materials and the deployment plans and procedures;
2. Prepare for testing by building the detailed test plans for system, integration and user acceptance tests and developing the unit test specifications;
3. Perform system development to build and unit test the release;

4. Perform system testing to test the proper execution of the entire application, including interfaces with other systems;
5. Plan acceptance test to test the proper execution of the application from the end-user perspective;
6. Plan system deployment by completing the deployment plans to an executable level of detail.

Acceptance Testing

The objective of this task is to conduct user acceptance test according to the acceptance test plans completed in the Build task.

Training

The objective of this task is to provide training to your trainers to prepare them for end-user training.

Subtasks typically included are:

1. Develop the trainers training guide;
2. Train trainers;
3. Develop end-user training guide (online content, Windows Help File, softcopy);
4. Develop system administrator training guide (online content, Windows Help File, softcopy);
5. Perform on-site, hands-on training for trainers;
6. Perform on-site, hands-on training for system administrator trainers;
7. Train end users (may be web-based online, classroom, or other).

Deployment

The objective of this task is to deploy the new system into production use.

Subtasks typically included are:

1. Initiate deployment based upon the deployment plans produced during Build activities;
2. Setup production environment;
3. Implement user support;
4. Cutover to production.

These high-level phases are included as an example of the activities involved in proper implementation of the new system. Implementation plans for the actual ACJIP system may vary depending on methodologies used, the project schedule, involvement of your resources, and many other factors.

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Arizona Criminal Justice Information Portal (ACJIP) 5-Year Strategy

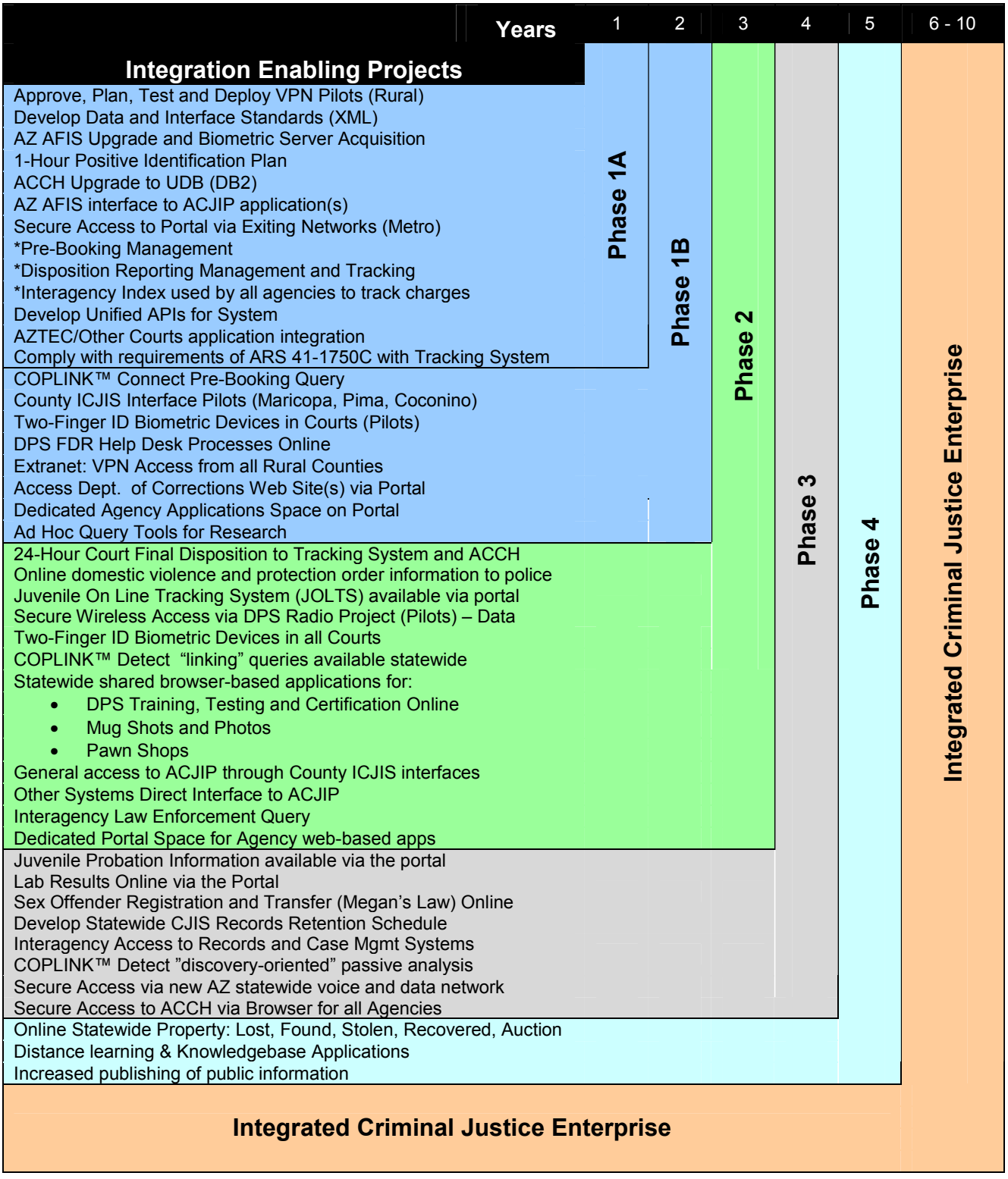

Table 1: 5-Year Phased Integration Strategy

Improvements to the Identification Process and DPS

Figure 10: Live Scan Fingerprinting

In order to accomplish the efficiencies sought in automating disposition reporting, a number of dependent business processes need to also be improved. Most important among these processes is the ability to positively identify an offender and to track that specific individual's movement through the process itself. The identification of the offenders is done currently using the State's Automated Fingerprint Identification System (AZ AFIS). Fingerprint data is routinely entered into AZ AFIS during the booking process at any of several County Sheriff Offices jail facilities throughout the State through Live Scan.

Live Scan is the first part of the positive identification of offenders. Live Scan is a process in which a person's fingerprints are entered directly into the AZ AFIS computer system, rather than rolled on conventional fingerprint cards. In many instances, fingerprints are also inked and rolled, then affixed with a pre-printed and bar coded label where there is no Live Scan equipment. The barcode provides the Process Control Number (PCN) that is normally generated by the Live Scan process. The barcode-labeled cards are then sent to the State's Department of Public Safety (DPS) who operates and maintains the State's AZ AFIS system and Central Repository. The Central Repository includes AZ AFIS, ACCH and other systems.

Figure 11: ID Technicians work with prints on screen

The second part of the process is identification. Identification is accomplished by an ID Technician who visually identifies the digitized fingerprints based on multiple points of identification to establish uniqueness of the prints. Positive ID occurs when the ID Technician declares sufficient points of identification and applies a name and other demographic information to the owner of the fingerprints. This process currently takes too long due to varying levels of staff coverage to perform the task. The identification process is also problematic in that it may be done by different agencies with different resources and policy as well. This distributed process tends to make the positive identification of persons in the system unpredictable with regard to timeliness.

If Arizona's law enforcement agencies cannot depend with reasonable certainty that identification will occur contemporarily with their custody of offenders, then the process breaks down due to the

arresting officer's need to return to the field or office, and the booking agency's need to process and physically move the offender from the booking cell to housing or release.

The affects of delaying identification are significant:

- Offenders who have been untruthful about their names move through the system.
- Arresting officers, the people with the most information required to complete processes, add charges, change associated paperwork, etc., move on to other things leaving the wrong information to further propagate in the system.
- Booking agencies may handle corrections of their systems and forms, and even add additional charges, resulting in the issuance of an additional PCN related to the original matter under another PCN.
- Prior to being identified, offenders may have been released due to limitations on the amount of time they may be held in custody for the agencies to complete their investigations and identification work based on case law and policy.

There are many other scenarios we might list here, but the bottom line is that the inability to positively identify someone within a short period of time results in adding effort, confusion and complexity to an already overly complex business process. The offenders benefit from this added confusion and may avoid capture on wants, warrants, holds and other matters that would have prevented their release if known in time by law enforcement.

Additionally, many offenders are ordered by a judge to be fingerprinted and booked at the end of the adjudication process. This common and problematic practice frequently results in criminal history records never getting into ACCH at all. Since the State's criminal history records must be based on a positive identification, the absence of prints relegates the charges unacceptable as part of the ACCH data. Arizona lacks checks and balances needed to be sure that persons ordered in for fingerprinting and booking actually get it done. Since Live Scan or otherwise fingerprinting on the barcoded cards is the start of the criminal history record, the lack of prints means the charges simply don't exist in the system. This problem has the direct effect of making ACCH unreliable because it is incomplete, and results in the more lenient handling of offenders who should be treated more severely by the system were their complete criminal histories known.

Finally, IBM learned that offenders further exploit the criminal justice system in Arizona by having persons other than those convicted and sentenced to jails and prisons show up to serve the time. This can occur because the means used to try and identify the people reporting to the jail, as the same person who was convicted at the court is inadequate. Formerly, Box 28 on the State's yellow disposition reporting form was used to capture the right index fingerprint of the person who appeared in court. However, the fingerprint, given the technologies in play and the workloads and staffing issues, would require significant human intervention in order to do anything with it. The requirement to use of Box 28 was eliminated.

Recommendations for Fingerprinting and Identification Enhancements

Based on the insights gained from DPS and other agencies, IBM recommends a number of improvements and related changes to help solve the problems associated with positive identification, and its impact on the problems:

- Increase Identification staffing by 25 or more technicians at DPS to enable 24 X 7 operations.
- Provide facilities for additional DPS identification staff and their equipment.

- Change the policy that precludes the sheriff's offices from fingerprinting arrestees brought to the jail by arresting agencies that have taken responsibility for Live Scan. Base the policy instead on whether or not Type 01 fingerprinting has occurred or not for the arrest charges.
- Establish policy in which Type 01 Live Scan fingerprinting is principally the responsibility of the county's Sheriffs Offices.
- Fix Type 01 fingerprinting performed by arresting agencies to electronically pass the PCN to sheriff, prosecutor or court.
- Regardless of which agency performs the Type 01 Live Scan, the system might generate a Disposition Report printout at the prosecutors' offices to notify interested parties that fingerprinting has occurred.
- Type 01 fingerprinting performed by arresting agencies should also provide 24 X 7 operations for identification, and should use the recommended support model to escalate identification issues.
- Centralize identification at DPS and agencies with 24 X 7 identifications units.
- Require all arrests for "Required Crimes" (i.e., felonies, domestic violence and sex-related misdemeanors and Driving Under the Influence) to be booked into Sheriffs facilities.
- Establish Real Name fields for the identification of persons, rather than building lists of AKAs.
    - Real name may be established when information supporting same is personally known by:
        - A Highly-Qualified Source:
            - Police Officer
            - Parent with documentation
            - Authentic birth record
            - Other accepted and highly-qualified form of ID
    - Real name may be changed if found to be in error.
    - Changed Real names are appended to the list of AKAs.
- Establish the ability to merge ACCH records when multiple records are determined to exist for the same person based on highly qualified information.
- Establish a Candidate Status for potential ID matches in order to remove the penalties of misidentifications by ID Technicians.
- Establish A Multilevel Support Process within the Identification Group:
    - Level One: Initial identification process for all identification work submitted.
    - Level Two: Secondary identification process to review those pending identifications with a status of "Candidate" against their probable matches.
    - Level Three: Supervisory level to oversee Identification process, and to make the final call on creating a new person or using an existing positive identification.

- Level Four: Investigations of prints submitted by Level Three or identifications challenged by someone.

- Deploy any additional Live Scan stations to remaining counties where fingerprinting volumes justify the use of Live Scan. This may include some municipalities as needed to eliminate non-automated fingerprinting. The ability to fax inked and rolled fingerprints should be provided as a minimum to all remaining locations.
  - Type 01 Live Scans to be performed principally by Sheriffs Offices during booking.
  - Identification to be performed by DPS Identification personnel, and subject to the multilevel support process above to reduce number of duplicate records.
  - Type 04 Live Scans may be performed by any authorized agency for purposes of identifying individuals.
  - Establish Memorandums of Understanding or other formal agreements with Sheriffs Offices and Municipalities regarding identification and live scan processes.
- Acquire new Biometric Server(s) and required vendor services to migrate middle and index fingerprint images from Central Repository fingerprint database(s), as well as the following.
  - Partition fingerprint data stored in the biometric server(s) by County.
    - Allow quick identification operations to search county first, then statewide if no hit.
  - Initiate two-finger biometric quick identification at Municipal and Superior Courts in 3 key counties as pilots.
  - Develop online queue of persons order to be booked and fingerprinted with two-finger print images used as authentication of the individual's identification.
  - Deploy two-finger quick identification capability to remaining Courts, Police Stations and Sheriffs Offices, and other places where quick identification of persons can serve.
- Develop the capability for a single Live Scan event to be applied to multiple outstanding PCN's charges pending fingerprinting.
- Develop an AZ AFIS interface to the new Disposition Report Tracking system that posts PCN, ARS, SID, and available demographics data to the tracking system when Live Scan is performed.

These recommendations represent substantial remedy to many of the problems that hamper the process of accurately developing the criminal history records for the State. IBM's recommendations enable a new paradigm in which more order and structure work together with technology to streamline the identification process—so critical to the timely disposition of charges.

Formalize Roles for Type 01 Live Scan Process

By formally establishing the counties' Sheriffs Offices as being principally responsible for Type 01 Live Scans, the State should establish policy requiring that offenders charged with any of the required crimes be booked at a Sheriffs facility and fingerprinted. This will ensure that the criminal history records will begin more consistently. Arresting agencies performing Type 01 fingerprinting should adopt practices, policy and operational capabilities, consistent with the Sheriffs' Offices to ensure continuity for the entire process. IBM also recommends that Arizona consider creating a Type 01B fingerprint process that captures the prints and demographics information, and establishes an

incomplete record in AZ AFIS to be completed when the arrestee arrives at the detention facility. This new process should return identification information to arresting agencies much the same as the 04 process, but initiates the 04 process in advance to save time at the jail and to allow wants, warrants and holds to be determined as early as possible by the arresting agency.

Synchronize Processes by Declaring Real Names

"Real names" is a concept that seeks to bridge a fundamental gap in the way the criminal justice enterprise in Arizona deals with offenders. Based on the use of automated fingerprint identification technologies (AFIS), Arizona's charge disposition reporting process it is too tightly coupled to cases moving through various agencies involved in the criminal justice process. The problem is that the fingerprinting process can perhaps yield positive identification on a set of fingerprints, but they may be correlated to an incorrect name based on the person's untruthfulness. The system, and the rest of the world for that matter, tends to deal with people by their names. Police officers don't address arrestees by their State Identification Number (SID). Judges don't call their cases based on the offender's Process Control Number or AZ AFIS number. This sets the stage for considerable disconnects between the purpose of positive identification and the processes to which it has been applied in Arizona.

The principle of positive identification is that the fingerprints don't lie. To that concept, AFIS systems add numbers, images, and tools to accomplish the identification process. Ultimately, AFIS records created or found in the process are correlated to a name. Because the fingerprints hold the key to identifying persons in this model, agencies that institute AFIS often de-emphasize names as something of a moving target, and highly unreliable. So long as one enjoys access to a Live Scan workstation and the knowledge of how to extract minutia and match several points of identification, people can be identified by their fingerprints and tied to other information in a system. Once all of this is done, such a skilled operator will inevitably refer to the identified person by his or her name.

By de-emphasizing names in AFIS, agencies create confusion. Since any names added after the initial AFIS record is made become an alias, this allows a person's real name to be buried in a list of bogus names, and for that person's criminal history records to be established under what is really an alias.

This is classic instance of technology dictating practice instead of technology supporting real world business needs. People really do have names. They also have aliases, some legitimate name changes, and some completely false, yet still tied to certain events.

IBM recommends that the fingerprint database be modified, if necessary, to have fields designated for a person's real name. That name may not be known when the record is first created, or it may legitimately change, but the designation of a real name will go a long way towards bringing Arizona's business processes in line with its statewide fingerprint repository.

Establish Levels of Qualification of Real Names

IBM also recommends that the State qualify the real name by allowing it to be declared based on some good cause. Personal knowledge of a police officer, parent or other highly qualified source of information is more significant than a driver license or employee identification card. Such Qualification levels might be as follows:

- Unqualified (e.g., name provided by arrestee, etc.)
- Corroborated (e.g., backed by acceptable State of Federal ID, etc.)
- Highly Qualified (e.g., known/declared by police, parole, probation officers, etc.)

- Positively Identified (e.g., 2 or 3 above with AFIS ID completed)

Until such time that a name associated with a positive identification is highly qualified, the name could occupy the real name fields, but as an unqualified entry or Level 1 status. Once a highly qualified source corroborates that name, or provides the real name, the name would simply be upgraded to a level of corroborated or highly qualified, until ultimately identified with AZ AFIS.

24 X 7 Identification

The establishment of full-time, 24 X 7 identification services is recommended to best achieve identification of offenders as quickly as possible. IBM understands that DPS has a vision of one hour average turnaround time for identification, but some of the business needs for identification uncovered suggests that identification may need to be done even faster. Booking officers reported having only fifteen to twenty minutes working with offenders before moving them out of the booking cells. Phoenix Police Department has devised a plan they call "the Green Box" or Demographic Data Entry System that is designed in part to deliver available information for identification to the booking agency ahead of the offender's actual arrival at the facility. The goal here is to take advantage of travel time to start checks for wants and warrants streamlining the process. The "Green Box" concept influenced IBM's planning for the pre-booking management component of the system proposed in this strategy.

DPS Staffing and Facilities Improvements

Identification is a critical and linked process on which the disposition reporting process is dependent, and all of the systems involved in these recommendations require support by DPS IT personnel. To accomplish these recommendations, DPS will require additional staff for both identification and systems support as well. Though the number of additional staff needed in each category has yet to be determined, the goal would be that DPS systems and processes be supported all of the time. In support of the recommended 24 X 7 identification operations, IBM recommends that DPS's facilities and equipment be increased to accommodate the added staff. Agencies with existing identification personnel might even consider focusing their people on more enforcement-oriented activities like matching suspects to latent prints and validating identifications made by DPS's Identification personnel. Skilled agency identification staff might even fill overtime slots at DPS. Arizona will also need additional Identification workstations, printers and facilities to house the operations where none exists today.

Implement a Multilevel Support Organization

The multilevel support process is recommended to formalize the process of dealing with missed identifications. It is intended to establish a formal path of escalation for DPS's identification personnel. During the study, IBM learned that Identification Technicians who make mistakes in identifying persons as a match are subject to termination by DPS. This is because the flawed identification can result in the technician being unqualified to testify in court as an expert in automated fingerprint identification or to undergo the test of competency successfully.

The multilevel support process is designed to provide Level One technicians with ready resources who can provide a second opinion or take over the identification of a candidate match in close call situations. In the event that Level Two technicians still find the prints too close to call, Level Three supervisors can make the call, or refer the identification to Level Four for investigation, including rigorous analysis of the prints to attempt to match an existing record, or to make a new identification. The expectation is that the vast majority or prints would be successfully identified at Levels One and Two. Merging of records would be limited to Levels Three and Four only. This can also provide a

more challenging work environment, professional growth path, and ultimately job satisfaction, while reducing the perils of misidentification by the technicians.

Implement Quick Identification Program

The acquisition of Biometric Server(s) and the deployment of quick identification readers at the courts and in other venues is key to keeping tabs on who is going through the process, and who is not. The readers will enable the courts to identify those persons appearing to the rest of the system in a way that can actually be used. The system can close the loop on persons ordered to the Sheriffs Office for booking but who do not show up. Further, when the people do arrive for booking, to serve time, or to appear, the system can be used to verify the identity of the person who actually shows up. This will help put a stop to offenders' relatives and friends serving time for them, etc.

One Live Scan to Clear Multiple Open PCNs

IBM's recommendation that a single Live Scan event be allowed to clear many open charges in need of fingerprints is meant to create operational efficiencies. In cases where a person has two or more charges that require fingerprinting for their dispositions to flow to ACCH, AFIS users might pick from a list of PCNs for that subject, perform the Live Scan, and have the required fingerprint cards with charges and other demographic information to be printed and finished items to close out based on the one scan.

AZ AFIS to Provide Data to New Tracking System

The requirement for the AZ AFIS system to interface to the proposed disposition tracking system comes from DPS. The tracking system will need various numbers and data from AZ AFIS to allow correlation to the initial criminal history records that will ultimately be disposed of by the tracking system. This interface is key to the update of the interagency index that will provide a central cross-reference of agency case numbers pertaining to a specific arrest event.

Formalize Agreements between Involved Agencies

Finally, Memorandums of Understanding or other formal agreements must be in place in order to ensure participation and cooperation as a priority by all agencies involved. The absence of this piece would be the weakest link in the chain of improving the identification process for the State.

Assessment of current Disposition Reporting backlog:

Based on a review of data and interviews with various agencies, IBM estimates that on average, of some 450,000 to 500,000 arrest charges each year, there are approximately 228,000 to 250,000 dispositions that end up incomplete each year. Agencies interviewed report keeping these incomplete disposition report forms in stacks, boxes and piles. By some accounts, some returned disposition report forms had even been destroyed.

Further discussion with agencies revealed that the disposition reports in their backlogs represent reports returned by DPS that have assorted problems. The common problems are discussed elsewhere in the report, but they are difficult to remedy due to the complexity of the process, the number of agencies involved, and the lack of any automated tools to help. Add to this the problems and limitations typical of paper processes in general and the reason becomes clear why so many dispositions remain incomplete.

Agencies that receive these rejected forms are challenged to figure out what went wrong. Though DPS appends the returned forms with a transmittal and reason for the rejection, the matter of actually

fixing the problems leads the recipients to the file cabinets and phone, and the back and fourth entailed in working on matters no longer in active processing. Suffice it to say that this difficult and tedious task is often a low priority for agencies and our interviews suggest that it is typically destined to remain unfinished and in one of the boxes, stacks or piles.

Existing Backlog of Paper Disposition Reports

IBM recommends that Arizona decide whether or not to try and resolve the existing rejected reports in total, or to try and identify a subset of these documents that are of sufficient importance as to warrant finding and finishing the dispositions. For instance, dispositions for aggravated assaults and attempt homicides might be selected, while auto theft and grand larceny charges might not be. The selected types of charges would have to be researched, and then the trail of the original dispositions recreated in order to update the new system.

IBM believes that the Interagency Index proposed for the new tracking system might help resolve some of the case number and agency identifier issues that have caused rejections. Agencies can then work at entering their backlog of rejections with the aid of information previously unavailable to the user working on the rejected form. For example, the Interagency Index would have various agencies case numbers, something that might be missing from a form and responsible for the rejection. We envisioned that a user would enter any number or numbers that she or he had for a query, and then the index would provide any PCNs where the numbers entered exist together. The resulting row(s) might now contain the missing data and the user could complete the form and send it back to DPS for processing. One agency reported having a case from 1928 that needed to have its disposition completed. Given the number or charges generated each year and the complexities involved in reporting, the State's retention of its ACCH records and the number of cases in backlog now, the indicator is that Arizona can achieve a goal of 100% within about 50 years if it fixes these problems now.

In any event, the backlog of reports must be dealt with if Arizona is to improve the percentage of past charges missing. Going forward, the new tracking system is meant to provide continuous tracking and assistance in completing dispositions the right way, the first time.

Solution Strategy

Relationship of Tracking System to Existing ACCH

Arizona's ACCH is the established criminal history repository that is operated by DPS and subject to federal rules and influence. The system may be accessed by other agencies throughout the nation, and the information contained therein is subject to rules that enable such intrastate, national and even international access. Because of this, IBM recommends a solution that will minimize changing ACCH, yet one that will provide high-quality, accurate and timely data to it to resolve the problems inherent in the current manual processes that feed ACCH.

The proposed disposition reporting tracking system is intended to add tracking and management capabilities to the existing Central Repository. It is not intended to replace the existing ACCH. ACCH currently posts records twice in the process. Once when a Type 01 Live Scan is run and a Disposition Report form is generated, and once again when the completed disposition report returns to DPS, filled-in by involved agencies. IBM identified this process as the key to Arizona's disposition reporting problem. While the yellow disposition forms are moving through various manual processes and through various agencies, DPS, nor the involved agencies, have a sure way of knowing what is happening with the disposition report. In a 2001 Performance Report on DPS, the State of Arizona's Office of the Auditor General assessed that DPS had to deal with over 300 agencies in trying to educate, manage, and process Disposition Reports.

Still, the process is prone to errors, duplications of fingerprinting, and handling of failures to appear and the absence of any tracking of charges prior to fingerprint identification.

The disposition reporting tracking system is meant to bring order to a very complex process that is completely separate from the system it feeds—ACCH. By design, the disposition reporting tracking system will populate ACCH just as its AZ AFIS interface and data entry operator do today. The data entry scheme will change to an interface similar to the one being piloted by Coconino County and the City of Peoria during this study.

Security and User Profile Aware Access

According to DPS, as part of the State's Central Repository, access to the ACJIP applications will require users to have a DPS Terminal Operator Control (TOC) ID. DPS feels that the relationship between the Disposition Reporting Management system and ACCH are sufficiently coupled as to require the same access rules that apply to ACCH data.

DPS currently maintains several thousand TOC Ids. The implementation of a disposition reporting tracking system will bring on more users who will require the TOC Ids. In order for users to get a TOC ID, DPS requires the users to be trained, tested and certified. This is currently a manual process. IBM recommends that DPS establish an online capability to apply for, test and certify for the TOC Ids so that users can obtain the access they need remotely. Once available, IBM further recommends that the online application be incorporated into the portal and used to administer TOC Ids to all users who need them.

The proposed system is to be security aware, and based on user profiles. These profiles will contain information on the users agency, roles, authorities and access rights, as well as their job categories. The job categories specifically can be used to limit access to certain system data based on what a person does. For example, should a judge try and access the Pre-Booking area, the system would not permit it.

The issuance of TOC Ids and development of security profiles can be used to drive system security functionality, and to stamp system transactions with sufficient details as to enhance audit ability of the system. Changes to data as Disposition Reports move through the system, and through various iterations, can then be posted to the audit trail to answer the who, what, where, when and why of the audit process.

Centralized System

The basis of IBM's recommendation is a centralized tracking system that minimizes the need to create unique interfaces to each agency's existing systems. Our recommendation is that Arizona implements this centralized system using web-based technologies as virtually all agencies in the State have access to one or more of the State's large data networks. Those agencies that lack connectivity to one of these networks still have an ability to connect to the Internet and may access the new system as an extranet using VPN technology to tunnel into the secure system.

This centralized strategy respects the intrinsic natures of the agencies and is meant to allow them the autonomy they need while providing common ground on which they can work together. The approach is designed to provide specific system interfaces and a common user interface, accessed via a web browser, to interact with the system.

A system interface will be developed based on the work of the recommended standards subcommittee. DPS, Maricopa County ICJIS, Coconino County, and others have made investments in IBM MQ Series middleware that may be useable throughout the State. The experience gained and assets built by these agencies should be harvested. The system will provide function and enforce data standards via its application programming interface (API) so that agencies can work with their IT staff members or vendors to feed the system during the course of working with their new or existing records and case management, booking and reporting systems.

The browser-based user interface will provide the primary query interface to the system, as well as smart data entry forms to complete the disposition reporting work required. These smart data entry forms will partition the various fields of the disposition report form into specific sections based on the users' roles. For instance, a Deputy County Attorney would see all of the charge data and various agency data from the arresting agency and booking agency, but she would be able to edit or dispo specific charge fields. The system would handle maintaining the order and sequence of charges regardless of how many additional charges might be added by any additional prosecutor. In this way, if a particular case has charges that are being handled by both the County Attorney and the City Prosecutor, additional charges added, if any, will be given a proper charge or count number based on the total number of charges being dealt with from all involved agencies. This centralized issuance of count numbers will be part of the new system, and available to other systems via the API.

As the charges move logically along their path to completion, grouped logically by common PCNs, those charges with dispositions for PCNs with fingerprint identifications completed will be passed on the ACCH as official criminal history records. Users will be able to query the system for all matters requiring their attention like aging incomplete charges and submissions in need of correction or clarification.

This model requires the system to be checked regularly by designated staff at the agencies, and at DPS.

Common Client

IBM recognizes the value of the web browser and recommends Arizona certify web browsers capable of supporting minimum levels of service as acceptable for use as standard clients for accessing the

ACJIP (the Portal). IBM further recommends that the State choose a single browser, rather than try to work with many. The browser wars of the past few years have resulted in sufficient differences in browser interpretation of web sites and content to warrant choosing a specific browser for which functionality may be ensured.

Since browsers are generally free, and often come standard with personal computers of all types, this recommendation is intended to reduce costs and to take advantage of such industry imperatives.

Browsers can be upgraded online, and outfitted with additional capabilities via plug-ins and other add-ons. These enhancements can generally be performed by end users, again reducing the total cost of ownership and maintenance to the State, while providing an avenue for continuing growth and expansion of the system's functional capabilities. As time goes on, the State can consider web-based training, testing and certification, dissemination of instructional materials, policy and procedures and more via this new infrastructure. These services can be augmented to include distance learning by live instructors, audio and video broadcasts of content, and public outreach programs to further reduce costs and extend the reach of the criminal justice enterprise.

Ownership, Stewardship and other roles

IBM's study revealed uncertainty over responsibility and ownership of the charge disposition remedy when problems occurred among all constituent agencies. The result of this confusion is that incomplete dispositions:

- drove users to guess at who might be responsible for fixing problems;
- made DPS to often send problem disposition forms to the last agency handling them, rather than the agency capable of fixing the problem;
- caused users to have to pulled paper files and make telephone calls to try to resolve problems;
- often were placed in already overwhelming stacks or boxes to be dealt with as time permitted, and as a low priority item.

All of this occurred despite the fact that DPS provides a transmittal stating a brief reason for the rejection of the form when returning them to agencies.

It became clear that well-defined roles and responsibilities must be established according to the most common flow of information from inception to final disposition. For this reason IBM recommends dividing the Disposition Report into the logical parts shown in Table 2, per the instructions on the paper Disposition Report Rev. 6, with regard to ownership:

Continued next page

Table 2: Disposition Reporting Field Responsibilities

Recommended Disposition Report Data Field Responsibilities

Color Key:	Responsible	Law Enforcement	Prosecutor	Courts	DPS

Field	Name	Responsible Agency/Type	
1	SID Number	DPS (AZ AFIS)	
2	Name	Arresting Agency	
3	Date of Birth	Arresting Agency	
4	Arrest or Previous Violation Checkbox	Arresting Agency	
5	Date of Arrest/Previous Violation	Arresting Agency	
6	PCN	DPS (AZ AFIS) or	Arresting Agency (Barcode Sticker)
7	Arresting Agency ORI	Arresting Agency	
8	Arresting Agency Case Number	Arresting Agency	
9	Booking Agency ORI	Booking Agency	
10	Booking Number	Booking Agency	
Repeating Sections			
11.a	Arrest Charge	Arresting Agency	
11.b	Arrest Charge	Prosecutor	
Repeating Sections			
12.a	AZ Revised Statute or Ordinance	*Arresting Agency	
12.b	AZ Revised Statute or Ordinance	*Prosecutor	
Repeating Sections			
13.a	Offense Type	Arresting Agency	
13.b	Offense Type	Prosecutor	
Repeating Sections			
14.a	Preparatory Offense	Arresting Agency	

Recommended Disposition Report Data Field Responsibilities

Color Key:	Responsible	Law Enforcement	Prosecutor	Courts	DPS

Field	Name	Responsible Agency/Type		
14.b	Preparatory Offense	Prosecutor		
Repeating Sections				
15.a	Domestic Violence/Victim Info	Arresting Agency		
15.b	Domestic Violence/Victim Info	Prosecutor		
16	Amended To (x)	Prosecutor		
17	Disposition Code	Law Enforcement if NR	Prosecutor, if NF or DP, otherwise	Court
18	Prison or Jail	Court		
19	Length of Confinement	Court		
20	Sentence Code	Court		
21	Probation Length	Court		
22	Fine Yes or No	Court		
23	JP or MN Case Number	Justice or Municipal Court		
24	Superior Court Case Number	Superior Court		
25	Disposition Date	Disposing Court		
26	Agency ORI Making Disposition Decision	Law Enforcement	Disposing Prosecutor	Court
27	Further Explanation or Modifications	Any Disposing Agency		

*** Maricopa County uses Section 12 for changing charges**

Table 2 follows the general assignments from the existing Disposition Reporting form. IBM is aware of recent revisions and improvements to this form in late 2001. Those changes should be incorporated into this responsibility matrix when finalized.

The decomposition of the Disposition Report form in Table 2 bounds the current disposition process as of the time of this report. IBM understands that the field 28 Right Index Fingerprint is no longer required, so it has not been included in the table. The table can be used to quickly establish ownership of the various fields that will make up the web-based solution. Additional fields are likely to be needed to complete the automation of the current paper-based process. Some fields will

probably be completed by the system or from data received from other systems while users will complete other fields.

IBM recommends that the system be developed in such a manner as to allow as many charges and explanations as may be needed, and cautions against following the paper form directly as a model for this particular application. The limitations of paper have driven the design of the paper form, thus automating the process based on the form can yield inefficient and unduly complicated processes.

Unlike the paper form, Table 2 shows the dynamic parts of the form that tend to be in flux during completion of the disposition process. The areas shaded in yellow represent those fields that change as the process continues. The areas shaded in gray do not change, and in fact, cannot change in order to maintain consistency with the existing ACCH system.

Extension/Modification of the Manual Process

During the study, IBM learned that the Maricopa County Attorney had begun using the Section 12 boxes on the paper form to add charges—presumably as a more straightforward use of the Disposition Report form. By design, the Section 12 boxes are for a slightly different purpose. Undoubtedly this provided a more understandable and useable method of changing and adding charges over using the Section 16 boxes to amend charges in Section 11. This is a classic consequence of paper forms that must serve many differing uses. In Maricopa's case, the Section 12 boxes probably remained unused and offered greatly improved usability.

The proposed web-based system would handle this matter for Maricopa and other counties in this way. Users would simply select a charge to change from a list of Section 11 charges, originally entered by the arresting agency. An on-screen button "Change" when clicked on might display a field called New or Amended Charge, allowing the user to enter a different charge. The user might even select the new charge from a list of valid charges for his or her jurisdiction. Once entered or selected, the system would do the following:

1. Check all existing charges and add the new charge with the appropriate count number.
2. Add the new charge to the appropriate Section 12 field in the array (x) of all charges.
3. Prompt the user to declare if the new charge is a Misdemeanor or Felony (Section 13x).
4. Prompt the user to declare whether the new charge was a Preparatory Offense (Section 14x).
5. Prompt the user to declare whether the new charge involved any of several Domestic Violence-related conditions or involved Special Victim Information (Section 15x)
6. Prompt the user to declare that they are sure about their edits, displaying the values to be entered when the transaction is committed. (OK button or Cancel)
7. Prompt the user to declare the original charge to have been amended by their actions (Amend Charge) or to provide a disposition (Disposition).
8. If the user selected Amend Charge, the system would update the field for Section 16x with the appropriate count number that was amended.
9. If the user clicks Disposition, the system might prompt the user to select a valid Disposition Code from a drop-down list for the original charge.
10. The system would update the appropriate field 25 count with the current date (Section 25x).
11. The system would prompt the user to enter any Section 27x Explanations or Modifications notations in free-text.

12. The system would update the appropriate field 26x count with the ORI of the user's agency or allow the user to select the disposing agency from a list by its common name, resulting in that agency's ORI being posted to the field.
13. The system would check to see that the user's agency case number was in the Interagency Index, and if not, fetch the case number or prompt the user to enter it.
14. Once a count was completed, the system would send the disposed count through a validation process to confirm that it conformed to the various business rules required by the ACCH system.
15. If no errors, then the count would be sent to the ACCH completing the disposition for that specific charge.
16. If errors, the user would be notified of the required remedy and prompted to fix same if still logged on after the validation process had run, or the system would send the charge back to the agency's Exception Queue for further work, along with information describing the nature of the problem.
17. Update the audit trail with the User ID, Date, Time and values changed in the transaction(s).

All of this could occur within a few smart and well-designed screens, and in under a minute, eliminating most, if not all, of the common problems that have led users like Maricopa to modify their use of the paper form to suit their needs and to try and get the job done better.

Roles Involved in Automating Disposition Report Tracking

During the course of the interviews and Joint Application Review Sessions, IBM identified several potential roles of both agencies and users that should be considered when formal design of the proposed system begins. The roles identified suggest categories of users and will likely affect security models and influence system behaviors and control. The sections below describe some of the roles that emerged in our sessions:

Primary Agency Roles

Owners: ORI Agency for a given PCN or group of charges in the pre-booking area.

Initiators: Any agency that can cause charges to come about. This includes out-of-state agencies that issue warrants, and holds, etc.

Stewards: The people who maintain the data for the enterprise. These people generally run the information system and enforce policy and business rules to ensure availability, accuracy, and safety of the data.

Administrators: The people responsible for overseeing an agency's role and contribution to the process and systems involved in the process. The Administrator is the first line of escalation when there are problems with the process.

Coordinators: The people responsible for the day-to-day, hands-on interaction with the system. Coordinators check work queues and manage the actual electronic records as they progress through the process to become criminal history records. Coordinators may be data entry staff or supervisors, and will work with the data through the portals web-browser user interface, or through their existing case or records management systems, interfaced to the statewide tracking system.

General User Roles

Approvers: Approve actions where necessary

Editors: Enter or edit data in the system directly or indirectly through a system interface.

Readers: Any user authorized to access the system, limited by their security profile and associated privileges.

Job: The type of job associated with a given user. These classifications should be high-level categories like judge, police officer, clerk, detention officer, corrections officer, parole officer, and so on. These job designations will help enforce policies that can control access to information and eliminate the potential for a user to access data inappropriate for their use or consideration. Classifications will likely be tied to the status of the charges as well in order to allow access to information when it is needed and appropriate.

Proxies: Users who work the system on behalf of other users. Example: Someone manning a service desk in dispatch that enters pre-booking information into the system for Deputy Smith while he drives an arrestee to the jail to complete booking. Proxies' information would be stored in the system for audit purposes and accountability, but the system record would be created on behalf of Deputy Smith as if he had done it himself. Deputy Smith could edit or append the record created by the proxy user.

Reviewers: Users responsible for checking data in the system. Reviewers would have Reader and Editor roles as well.

Auditors: Users who examine the data for accuracy and conformance to rules and policy. Auditors would be able to view records in the system along with the various date and time stamps, user identities, and other information typically unseen by other end users. Auditors could be from any agency, but will certainly exist at the agency that runs the system.

Senders: Users who send information to others. Generally any authorized user.

Receivers: Users who receive information from others. Generally any authorized users.

Use of Agencies' Intellectual Capital for Standards

Maricopa, Pima and Coconino Counties, and the Administrative Offices of the Court (AOC), appeared to have made the most progress in integrating various systems within their respective counties. It is important to note that counties involved in the surveys and interviews had a countywide perspective when working to process cases, thus build the disposition reporting data. When the same agencies intended to use criminal history and other investigative data sources, their perspectives were clearly statewide, national and beyond.

Each of these counties has developed interfaces that provide for the movement of data between systems. The AOC is actively involved in pilots to generate final dispositions for ACCH from its AZTEC system (formerly known as FACTS). The pilots are purported to be achieving successful submissions of approximately seventy percent of the dispositions sent to DPS.

The knowledge gained by these agencies in developing their interfaces and in using store and forward middleware technologies like IBM's MQ Series is invaluable to the recommended efforts proposed in this report. Keep in mind that the solutions built and investments made by these agencies may or may not provide direct benefit to a statewide-integrated justice scheme. IBM believes that the mindshare gained by the efforts of these agencies is a least in part transferable, and definitely applicable to developing statewide standards for the data to be shared, and for the data and metadata, communications and interchange standards required to do so.

IBM recommends that knowledgeable representatives from these agencies and others participate in the proposed Standards Subcommittee of the Technology Committee, and participate in other national standards committees to the degree necessary to develop the best standards possible.

The Standards Subcommittee should plan for coexistence with, if not compatibility with or adoption of, other relevant standards for public safety and justice data exchange like the emerging National Institute of Standards and Technology (NIST) Legal XML and National Law Enforcement Telecommunications System (NLETS) XML Standards.

Some believe that standards can be an inhibitor to innovation, creating rigid requirements that focus too much attention on commonality and structure, while bootstrapping functionality and simplicity. IBM suggests that standards be developed, adopted, and employed with the understanding that they should enable interoperability, and not drive well designed but proprietary shared systems interfaces. A well-designed technical architecture and solution can handle the dynamics of the heterogeneous, multi-standard environments of today and tomorrow. Should the efforts' various task forces result in a combined XML standard resulting from the NIST Legal and NLETS Criminal History Records standards into the panacea EDI for criminal justice, and then certainly Arizona should adopt that standard(s) and methods in order to participate in the national and international criminal justice enterprise in the future. Failure to do this would result in the digital alienation of Arizona from the rest of the country and the world, and in substantially greater costs and complexity in overcoming a shortsighted decision later on.

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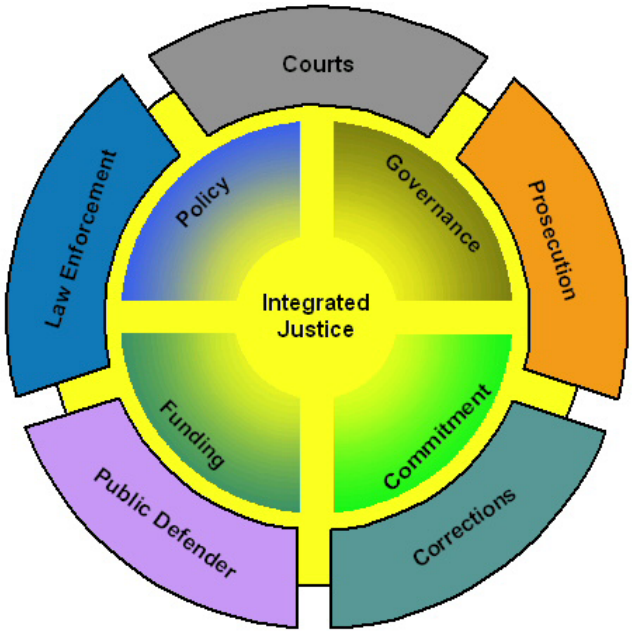
Policy & Governance: The Key to Success



Authorities and Roles Pertaining to Criminal History Information

The Arizona Criminal Justice Commission (ACJC) is an independent organization with criminal justice planning and oversight responsibilities. The Arizona Criminal Justice Information System (ACJIS) central repository is located within the Department of Public Safety with oversight by ACJC. Arizona Revised Statutes 41-2401 through 41-2421 pertains to the duties of ACJC. Arizona Revised Statutes 41-2201 to 41-2206 are applicable to the Arizona Criminal Justice Information System. Arizona Revised Statues 41-1750 covers the Central repository for criminal history record information and 41-1751 deals with reporting court dispositions to DPS. Each criminal justice agency is required to report criminal history record information, whether collected manually or by means of an automated system to the Arizona Criminal Justice Information System central repository pursuant to the provisions of Arizona Rev. Stat. 41-1750 and 41-1751 and 41-2205(B). DPS conducts annual audits to insure criminal justice agencies are complying with the rules and regulations governing the maintenance and dissemination of criminal history record information. Arizona Rev. Statute 41-2205 (A).

Recommended Policy and Governance Organization

Throughout IBM's study of Arizona's disposition reporting process, policy and governance were consistently cited as one of the most important factors in creating a viable statewide integrated justice information system. Based on the input from various agencies, a well-balanced policy and governance organization, motivated to cooperate with one another was essential in order to ensure funding and continuation of the vision of integrated justice for the State. A well-balanced organization was described as one in which the potential for "power plays" was minimized, and in which cooperating agencies recognized the mutual benefit of working together and sharing information. In an integrated justice environment, each agency's contribution must be acknowledged

based on its potential value, rather than by its volume. When a police officer from the largest county in the State encounters a dangerous felon from the smallest city, an integrated justice system must not lack the information needed to inform that officer because the city in which it originates submits only a few dispositions each year.

The following policy and governance recommendations are intended to facilitate the development of such a well-balanced and cooperative organization to oversee the further development of integrated justice in the State of Arizona.

Strengthening of Arizona Criminal Justice Commission's Role

The Arizona Criminal Justice Commission emerged in IBM's study as the logical and established organization for hosting the policy and governance organizations for statewide integrated justice. The agencies interviewed tend to enjoy a positive relationship with ACJC and regard the Commission as fair and impartial. The agencies see ACJC as aligned to the vision of integrated justice and suitable to provide a home to this statewide endeavor.

Many agencies expressed concerns, however, that ACJC had not been chartered with responsibilities and empowered by laws that would enable the organization to make statewide integrated justice a reality.

IBM recommends that ACJC's authority and responsibility be expanded to formally convene a recognized statewide policy group to oversee and implement statewide-integrated justice initiatives. ACJC's Executive Steering Committee already exists, and is made up of the State's criminal justice agency heads, thus that committee should be narrowly focused on integrated justice policy and goals specifically, and that other matters be delegated to appropriate subcommittees or groups within the agencies.

Executive Steering Committee to focus on Disposition Reporting as the Policy Committee

As mentioned throughout this report, disposition reporting touches many of the criminal justice organizations throughout the State of Arizona. As such, disposition reporting is a seed to statewide-integrated justice. ACJC's Executive Steering Committee has already established integration of justice as a goal and its membership represents most if not all of the agencies involved. These agencies are both contributors and consumers of criminal history information so they are stakeholders in the creation of the information. This positions the group well to take ownership of the physical process for the state.

IBM determined that ownership of the process is currently split between DPS who is tasked with compiling criminal history records and the AOC who owns the actual form on which dispositions are created. The requirement that agencies provide dispositions exists in State law, and other guiding rules come from the State Supreme Court. The resulting situation is like a busy intersection with a traffic signal out. People are left to interpret the laws based on their understanding and it is unclear as to who's in control. The organization that fixes the traffic signal must rely on police to call in the problem to them. The police may place signals on flash or erect temporary stop signs that cause the rules to change for the drivers, and so on and so on.

Like the preceding scenario, the disposition reporting process is a complex arrangement that needs someone responsible for control to see that things are done as planned.

Some agencies expressed concern that ACJC's Executive Steering Committee's attentions were divided between integrated justice and other matters that though important, tended to dilute the group's role. The example given was that the Executive Steering Committee would spend time on issues such as whether or not an agency would be approved to get grant money for five personal computers or not. The broad responsibilities of the Executive Steering Committee needs to be supported by subcommittees in order to allow the Executive group to remain focused on statewide integration and the big picture without distraction.

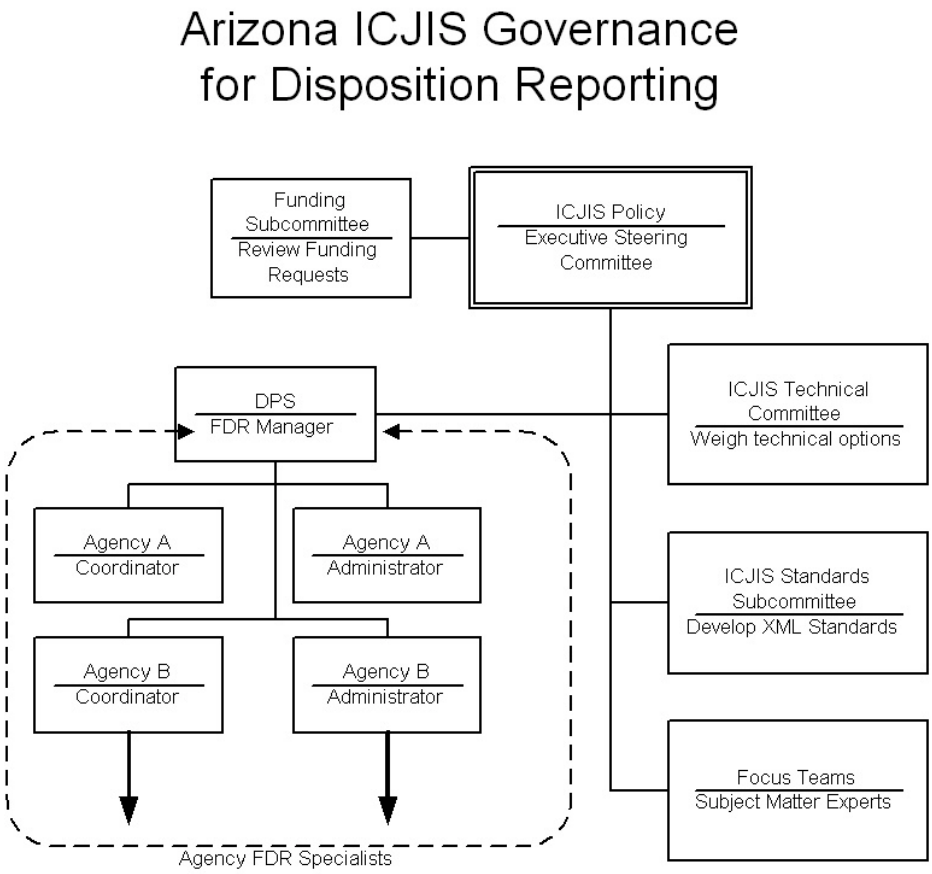


Figure 12: Recommended Policy & Governance Organization

To accomplish this IBM recommends the following committees, subcommittee, teams and responsibilities:

- Policy Committee (existing Executive Steering Committee)
- Funding Subcommittee (new)
- Technical Committee (existing)
- ICJIS Standards Committee (new)
- Focus Teams (new)

In addition to these committees, IBM recommends that the DPS manager responsible for DPS's role in the disposition reporting process chair a group of agency coordinators to collaborate on processes, needs, and improvements. Comprised of agency staff who perform the day-to-day, hands-on work

involved in creating criminal history data, this group would provide input and recommendations to the Policy, Technical and Standards committees. Agency Administrators would also participate in this group as is needed.

Policy decides the "what." Technology provides the "how."

The Policy Committee's main responsibility should be to integrate justice throughout the State of Arizona. Based on law and their agencies' respective responsibilities, the Policy Committee would focus on "what" needs to be done, it's business value or importance, prioritization of initiatives, and measurement of accomplishments achieved towards the State's business goals and objectives.

The Technical Committee should support the Policy Committee by deciding the "how" to accomplish the business goals and objectives using information technology. The Technical Committee should strive to leverage available statewide infrastructure whenever possible and cost effective. The Technical Committee must embrace integration at the State level as a critical success factor for the integration of criminal justice systems as a whole.

The New Groups

The Funding Subcommittee would be responsible for the approval of expenditures, much like the Executive Steering Committee does currently. In fact, the Funding Subcommittee may well be a splinter group from the Policy Committee's membership. The purpose for the Funding Subcommittee is to remove the role from the full Policy Committee in order to eliminate both the perception and the tedium of approving small purchases by the full. ACJC and it's Board should designate limits for approval that can be made without the full Policy Committee voting. For instance, the Funding Subcommittee might have authority to approve matters involving up to $750,000. However, funding requests above $750,000 would require a vote of the full Policy Committee. As recommended elsewhere in this report, voting should be done on a majority, and not require unanimous approval.

The Standards Committee is a working group and would be responsible for developing data and interface standards for the sharing information between agencies. The committee's principal focus would involve the following:

- Identifying the data to be shared
- Identifying the who has access to that data
- Recommending strategies for data migration into new statewide repositories
- Recommending retention rules
- Identifying interface requirements
- Advising the Technical Committee

The Standards Committee should leverage the knowledge and experience of those agencies that have achieved some level of integration within their own counties or organizations. Maricopa and Coconino Counties, DPS, AOC and other agencies that have or are involved in integrated systems or that have developed interfaces should participate in the group. Because this group will have a complex mission, it is recommended that it be no larger than 21 active members in order to avoid more process than productivity. The twenty-first member would chair the committee. A representative from GITA should be invited to participate with the Standards Committee in order to provide insights into other statewide standards and initiatives that may have or be affected by emerging criminal justice standards.

As not to preclude input from any agency, it is recommended that Standards Committee recommendations be published and distributed to the Technical and Policy committees for broad distributions to all agencies' respective stakeholders who are not on the Standards Committee.

Focus Teams are special interest workgroups that may be convened for specific planning, evaluation or strategy tasks. For instance, should the Policy Committee prioritize the use of laptop computers in the field to access the Portal, a group of working police officers, deputies and investigators would be brought in to bring current real-world perspectives to the plans. Focus teams should develop a document consisting of the following:

- Date
- Project or Initiative Description
- Understood Purpose
- Policy Committee Goals and Objectives
- Pros
- Cons
- Observations
- Recommendations
- List of Participants

The Focus Teams may review documents, have discussions, view presentations and/or demonstrations, site visits, and other activities as is required. Persons invited to participate on a given focus team should be selected based on their expertise, willingness to contribute, understanding of the relevant business area or subject matter, and similar criteria. As such, the Focus Teams may or may not be regularly convened, and may involve different participants each time depending on the purpose.

Committee Leadership and Voting Recommendations

Currently, the Executive Steering and Technical Committees develop and approve policies concerning statewide integration efforts. The policies developed are subject to review and approval by the full Commission. ACJC should require only a majority of the full Commission to gain consensus rather than requiring full Commission approval.

Under the recommended structure, the Policy Committee would determine "what" is needed to tie the different integrated justice initiatives together and take a strong leadership role in prioritizing the various initiatives. The Technical Committee would then support the Policy Committee's goals and objectives with technical approaches, based on input from the Standards Committee and any Focus Teams involved.

Based on agency concerns over leadership, IBM recommends that the chairmanship of the Executive Steering Committee should be rotated once a year in such a manner as to ensure all agencies are given opportunity to occupy the chairman's role at some point.

Commitment is critical to the completion of an ICJIS endeavor.

IBM found that most of the agencies involved in the study cited issues relating to commitment most frequent among their concerns. Specifically, issues of territorialism and lacking cooperation were the problems that would have to be overcome in order to see integrated justice a reality for the State. Situations cited ran the gamut from purchase decisions being made in a vacuum to agency heads

engaged in deliberate and contrary behaviors. These problems will not be easily overcome. However, the recommendations made in this report have been made with full awareness the independence and autonomy of criminal justice agencies is not unique to Arizona, and that it usually does not filter itself throughout entire agencies. In many instances nationwide, agencies who harbor parochial attitudes still function together, albeit less efficiently than is possible. A good example of such cooperation is the handling of wanted persons, mutual aid pacts, and other cooperative endeavors established for the good of the public and the safety of law enforcement personnel.

IBM recommends that Arizona adopt policy that prioritizes and encourages agencies to check their differences at the door when engaging in the work of the criminal justice enterprise. Agency heads, middle management, supervisors and line personnel alike must know exactly the impact of their parts of system processes. IBM recommends that Arizona mandates training on disposition reporting and the State's vision for integration of justice as required of all criminal justice personnel. Given the number of people who would have to be trained, IBM recommends that training be made available in the form of video or streaming web content so that people can receive the training when they are available. Having trainers drive around the state is simply inefficient and inappropriate given the importance of the information.

Agency heads must authorize time for training to occur and must make it a priority that each of his or her people maintains an awareness of their role in the processes of the criminal justice system. When a clerk can inadvertently omit filling in information on a form or screen, and critical officer safety information fails to go into the State's criminal history system, then the system is failing. No position can be exempt from the awareness of the critical importance of his or her role.

Funding is essential to make the project plausible

In order to make the recommended changes and to create the accountability and trace ability recommended in this report, ongoing and adequate funding is essential. The fastest way to derail the success of these recommendations is to adopt them as unfounded mandates.

Funding must be sufficient to sustain the new enterprise, not just start it. Like every other state in the nation, Arizona is moving further into the business of criminal justice and supporting it increasingly with technology. Technology saves time and speeds results for government. Technology should not be expected to be a one-time cost that delivers continuous savings. Whereas technology supports the business, people must support the technology. The people who support the technology must also be retained and satisfied professionally. The applications that are used to run the criminal justice enterprise depend on these people. As such, funding for the recommendations made, both information technology and technical and non-technical human resources must become a part of the cost of doing business now and in the future.

Funding for staff may come from funding sought by ACJC initially, but the State, counties, cities and towns should prepare to absorb these people into their budgets after the first year. It is simply impractical to expect long-term funding of positions that enable agencies to do the work required of them by law from external sources. The work performed is too important to maintaining integrated justice for it to be eliminated due to a lack of funding.

Likewise, funding for systems must also be provided with total cost of ownership in mind. This amounts to the initial expenditure for hardware, software, services and maintenance needed to establish these new capabilities, then the ongoing costs of support, training, upgrades and enhancements, software licensing, facilities and other costs required to operate the systems.

Policy must be focused and applicable to prevent confusion

The policies created and updated by the Policy Committee need to be focused on integration of justice for the State as a priority over other issues. Maintaining this focus will better ensure that the policies are applicable and relevant so that they eliminate confusion. Borrowing an example provided by Maricopa's County ICJIS group, when a police agency has the ability to do Type 01 Live Scans, the Sheriff's Office is not to do Type 01 fingerprinting on that agency's arrestees per existing AZ AFIS policy. This policy may seek to ensure that investment in AZ AFIS equipment be justified by use, but the policy contradicts the primary purpose of AZ AFIS; to positively identify offenders. This is an example of how policy can cause confusion and set up failures, rather than provide the best opportunity for successful identification and generation of the charges to be disposed of to create accurate criminal history records.

Arizona must tackle such issues as a priority. Policies, laws, rules and procedures that hamper the integration of justice should be changed immediately.

Policies should also be stated as high-level concepts to which many initiatives can be applied. These policies should then be supported laws and authorities. The policies should then be implemented by rules and procedures. In some cases, laws may have to be changed where applicable. For example, when the Supreme Court's Rule 37 was recently changed to eliminate the need to file the disposition form, that policy might have been expressed in this way:

Policy: To provide charge dispositions as quickly as possible to DPS to speed the development and availability of high quality, accurate and timely criminal history records.

Laws and Authority: (Cite applicable laws and authority empowering the court to act.)

Rules: Rule 37.4 is changed to eliminate the requirement to send the paper Disposition Report form to DPS when data is sent electronically.

Procedures: Agencies must file Disposition Reports for all felony crimes, and for select misdemeanors, including Domestic Violence and Driving Under the Influence. Charge disposition must be filed on form DPS 802-03757 Rev. 11/01 if submitted manually. If the charge disposition is submitted using an automated system, then agencies are not required to send paper forms to DPS.

In this example, the policy drives the vision and intentions of the court across many different initiatives. Applicable law and authority qualifies the court to make the policy. Rules provide a means of specific application to implement the policy. And procedures detail the way in which the policy is to be carried out.

This kind of policy statement allows a single vision to be established, and to influence many different ways of realizing that policy. It also tends to simplify policy enhancing people's understanding of the policy.

Governance: Key to Keeping Constituents Together Long Term

As mentioned before, IBM's interviews revealed that many agencies felt that only the largest agencies with the greatest amount of data and influence would dominate committees and diminish their input to this new statewide system. IBM made a number of recommendations for changes in the policy and governance area, but the fundamental challenge remains—to create a sense of shared importance and oneness among all of the agencies.

In an integrated justice environment, the largest agencies are always known and recognized as most critical to the overall success of statewide-integrated justice systems. These agencies can be instrumental in creating an environment in which their smaller constituents can work with them and with one another statewide. The smaller agencies should not assume that the large agencies disregard

their significance and contributions, but instead offer their input to new ideas and needs freely. All agencies should keep in mind that good business decisions are often made on the basis of the greatest good and the highest return of investment. This neither ensures, nor precludes any agencies contributions from creating the greatest benefit. The key is to bring value to all discussions from each agency‘s perspectives and insights in order to contribute to the broad and circumspect viewpoint needed to achieve integrated justice for the State.

Assessment of Individual County Resources

Current Criminal Justice Application Environment

The following table provides a high-level view of the application environment supporting criminal justice activities. The table is based on information received from the ACJC Information Technology 2001 Survey results and interviews with participating agencies. The cells in green indicate custom applications or heavily customized Commercial Off–The-Shelf (COTS) applications.

Agency	Platform	Application Description
Dept of Corrections	IBM Mainframe, AS400, LAN	AIMS (IMS based)
AZ Superior Court	IBM RS6000	DW (Statewide Repository)
Peoria & (3) Flagstaff Courts Pilot/ plan to go Statewide	Multi-system based using IBM MQ Series	Justice integration for courts (move disposition information from AZTEC to ACHH)
Statewide - all	IBM AS400	JOLTS (Juvenile Probation)
Statewide/not all	IBM RS6000's, AIX	AZTEC – 1300 court/users
Cochise County Sheriff Office	IBM RS6000, AIX, NT	Spillman – RMS, Jail, CAD, Evidence
Coconino – CA	Dell, NT, Oracle	Constellation Damian CMS
Coconino – SO	Dell, NT, Oracle	Intergraph RMS and CAD
Coconino – Jail	Dell, NT, Oracle	Intergraph JMS
Coconino - CJI	Dell, Win2000, Oracle, MQ Series	Criminal Justice Integrator
Flagstaff PD	IBM AS400, NT, DB2/400	CMS CAD & RMS converting to Intergraph
Gila SO	IBM RS6000, AIX	Spillman
Gila CA	NT, SQL, Unix	MS Office Access DB
Globe PD	Win98, Novell Netware	UCR/CAD – LEADS
Maricopa Courts	NT, DEC VMS, Solaris AIX, Novell, Bull GCOS	Case & Cash Mgmt
Maricopa – Supreme Court	Bull, Unix, NT, Win2000	Court/Case Mgmt ACS, CMS, and iCIS (custom)
Maricopa County	Unix/Informix/PC's	APETS (adult probation)
Phoenix PD	Unisys, HP, MCP, NT, MPIX DMSII and Turbo Image	RMS (PACE) CAD Custom development
Maricopa – ICJIS	HP Unix DB2	Integration Engine for CJ
Maricopa – Jail	Bull/GCOS8	JMS (custom dev)
Maricopa – SO	Bull/GCOS8	CAD, Admin Mgmt, etc. (lots)
Navajo – SO, CA	PC, NT, Win2000, AIX, Novell	Legal Edge, Spillman, Visions
Winslow –PD	PC, Win95 & 98	StreetGuard CAD, RMS
Pima –Tucson PD	Compaq (DEC) Alphas, PC, Open VMS, NT, Oracle	PRC Message Switch. CAD, RMS with heavy modification/custom
Pima – SO	RS6000, AIX, C-Tree	Spillman Jail Management System, Records Management System, Computer-Aided Dispatch System, etc.
Pima - Courts	IBM AS400, RS6000, NT, Informix	Case & Cash Mgmt (Pima)
Pinal CA	PC, NT, Oracle	Constellation Damian CMS
Santa Cruz – SO	DEC, Unix, Win95-98 Clients	Spillman
Nogales PD	IBM AS400, WinNT, DB2/400	HTE Records Management System, etc.
Yuma SO	IBM AS400, DB2/400	New World Systems – Jail Management System, Records Management System, Computer-Aided Dispatch System

Assessment of the Current Technical Environment

Nine Arizona counties participated in the interviews and Joint Application Requirements Sessions. Of the nine, only one had an interface between agencies to support disposition reporting. This interface is currently in pilot phase at Coconino County Courts and the City of Peoria (not included in this review). The interface facilitates movement of the disposition information from the Court Case Management System to the Central State Repository (CSR) to update the Criminal History Record Information (CHRI) open in the ACCH system. This interface allows court personnel to submit the disposition without completing the paper Disposition Report form. All other agencies interviewed were operating in isolated cells of automation. When work flows from one local agency to another, it does so manually by paper, fax or voice. Only a few of the local agencies reviewed were without functionally specific solutions. Those without criminal justice specific solutions were using generic, commercially available document and database tools such as Microsoft Office and Access databases. Metropolitan localities with larger volumes were often supported by custom developed applications for their criminal justice environment.

The current applications supporting the criminal justice processes within each county vary greatly in functionality, currency, and support requirements. Agencies have established their technical environments based on characteristics of their localities. Population density, crime rates, geography, funding, availability of skills and political alignments influence the processes and the technical environment supporting them.

The ability to support the mission of each agency is within the realm of the current environment and planned initiatives at each agency. The ability to administer criminal justice as a complete closed loop process requires cohesion of agency environments. Today, cohesion of local agencies is primarily in the form of written and verbal communication such as paper forms and letters distributed via mail or fax, phone calls and visits. There is some use of electronic mail for communication, but it is not a uniform practice.

Gap Strategy

Rather than devote too much time to analyzing the technological gaps between Arizona's criminal justice agencies, IBM's recommendations are designed to minimize the significance of the gaps that exist.

The proposed ACJIP is a centralized system that agencies may interact with through a web-browser or through standardized system interface(s). The proposed solution assumes that users throughout the state can access the secure portal site using existing secure communications or across the Internet using Virtual Private Network or similar technology. The agencies interviewed either had or could have high-speed access to ACJIP on their existing networking infrastructure.

Where existing applications exist that capture some of all or the information needed, the interface(s) will provide a means for users to participate in ACJIP without significant impact on existing case and records management systems. The interfaces are meant to provide for one-time data entry as well as suitable feedback to users so that they are aware of the completion of work. The users will also have the ability to print the electronic disposition form in its current state. Finally, users will have the ability to assess where the disposition(s) for a given PCN is in process.

Getting data back out of the disposition tracking system will be handled using the browser. For law enforcement and prosecution users working in the pre-booking area of the system, COPLINK™ has been recommended as a query front-end for the data warehouse.

In order to achieve this vision, legacy systems like ACCH must be equally sustainable for the long haul. IBM recommends that these existing DPS systems be upgraded to the most current technologies on which they are based, and the careful consideration be given to replacement of systems that will prove increasingly cost-prohibitive to maintain as time goes on. The decision to maintain should not be based on existing IT skill sets and familiarity alone.

Planning for the Future

The primary focus of the review was to identify the functional gaps in the application environment to support disposition reporting. The key challenge to the process of reporting the disposition of the counts associated with a PCN is that they may be generated, modified and disposed asynchronous to the open Criminal History Record Information (CHRI). Once the process is completed, the concatenation of counts must be woven back together in the correct order and associated with the PCN for processing against the open CHRI. The initial charges on each Disposition Report may have been dropped, added, and/or amended, and have associated disposition and sentencing by multiple courts. In some cases, such as those initiated by summons, indictment, or cite and release citation, the defendant may not have been fingerprinted so the AZAFIS generated Disposition Report may not exist and the charges have no apparent association to a particular PCN.

Changing for Integration

To support reporting the disposition of all felony and domestic violence related charges, the tracking must move across agency lines. An ideal environment for integration would standardize all functionally aligned agencies on the same platform and application suite (solution). Realistically, a standardized solution might not provide the best fit for the specific agency's needs and resources since those of a large metropolitan area may be different from those of a small resort town. Some modular, scalable solution designs available today are configurable to match an agency's size and needs more closely. Even so, to attempt to uproot and overhaul the current application environment to provide standardization of the physical and logical platforms for local criminal justice agencies would be hampered by time, money and politics.

Instead, IBM proposes that the focus to integrate automated processes across criminal justice agency lines be to:

1. Standardize the content, format, and transport of information between the separate application environments;
2. Implement a method of once-only assured delivery of messages and information exchanged between agencies;
3. Provide a structured yet flexible approach for routing information through the process (workflow) with notification to the receiving agency;
4. Provide a central repository for "in process" pre-booking information accessible by law enforcement and prosecuting agencies;
5. Provide a central repository for "in process" disposition information accessible by the courts, law enforcement, and prosecuting agencies;
6. Provide the ability for multiple agencies to update a common Disposition Report based on the count/charge that agency is amending or disposing;
7. Provide the ability to submit the final disposition of a particular charge or charges on the Disposition Report as disposed;

8. Provide a searchable index to the Disposition Report by linking the PCN with demographic, agency case numbers, and other disposition reporting information creating an Interagency Index;
9. Provide each agency with an electronic scorecard showing completion of disposition reports based on information within the tracking system;
10. Provide access to the services from any criminal justice agency in Arizona with a browser client and Internet or State Intranet access;
11. Provide adequate availability, reliability, functionality, connectivity and responsiveness for the new system.

Changing the Local Environment

To support the enhancements cited above requires specific functionality in local technical environments. The agencies will need to:

1. Confirm user workstations are equipped with a supported web browser client;
2. Confirm the user workstations have adequate printing capabilities;
3. Confirm the ability to provide users with connection to the State's Intranet using dedicated access or through a Virtual Private Network established for accessing the State's Intranet using an ISP and the Internet;
4. Confirm the bandwidth of the connection is adequate to support the functionality of the web-based system;
5. Determine the local requirements for electronically submitting and receiving information as described by the data exchange standards established for integrating the disposition reporting process under Data Exchange in the Solution Strategy section of this report;
6. Add tools for messaging between systems as needed;
7. For messaging and data exchange, establish logical connections between local system servers and the State's Network as needed. (for example: configure Pinal County Attorney MS Windows/NT server with a TCP/IP connection to the Arizona Central State Repository);
8. Develop programmed interfaces to local applications as determined by the data exchange requirements for that agency;
9. Provide local "level 0" support of the new web-based system through allocation of focal point coordinators in each local agency;
10. Provide training and mentoring to local users of the new system.

Estimates

Local support requirements for the new system will evolve as the system moves from the build cycle to deployment and productive use. Local skilled resources or funding for vendor support will be required to implement the data exchange functionality. Additional local resources may be needed to prepare workstation platforms to support a web-based solution and ensure secured connectivity to the network.

Once the desired interfaces and infrastructure are in place, the local support requirements of the new system move to local training and end user support. The system operations and administration will be

contained at the central site where the web server and application server will be located. Because the local workstations accessing the system will not contain the Portal's application code, there will be little or no additional workstation administration required. Updates to the Portal's services will be performed at the central site. Updates to the workstation software will be limited to the web browser, the operating system and the query tool client. The Messaging and Integration Client will run on the local agency's server(s) to exchange data with the central application server. IT personnel will handle operational and administrative support for the messaging tool and interfaces. They will need the skill set to support the agency's server.

Based on our review of similar large enterprise portal and data warehousing projects, IBM estimates that a project of this magnitude will require a hardware, software, infrastructure and services budget of between $18,000,000 and $23,500,000, and will require 18 to 24 months to bring up the initial automated disposition reporting system, interfaced to the existing ACCH. Existing DPS systems will likely require between $6,000,000 and $10,000,000 to upgrade to current technologies. If support of the system is to be funded at both State and local levels, additional funding will be needed for each year that such support would be funded. There are approximately 300 criminal justice agencies in the State of Arizona that participate in the development of criminal history records. Some of these agencies have considerable IT support resources, while other may have none at all. With varying degrees of resources, equipment, systems and skills, it suggests that funding needs for such support will have to be made on a county-by-county basis. Participating agencies should include the following type of resources in their planning:

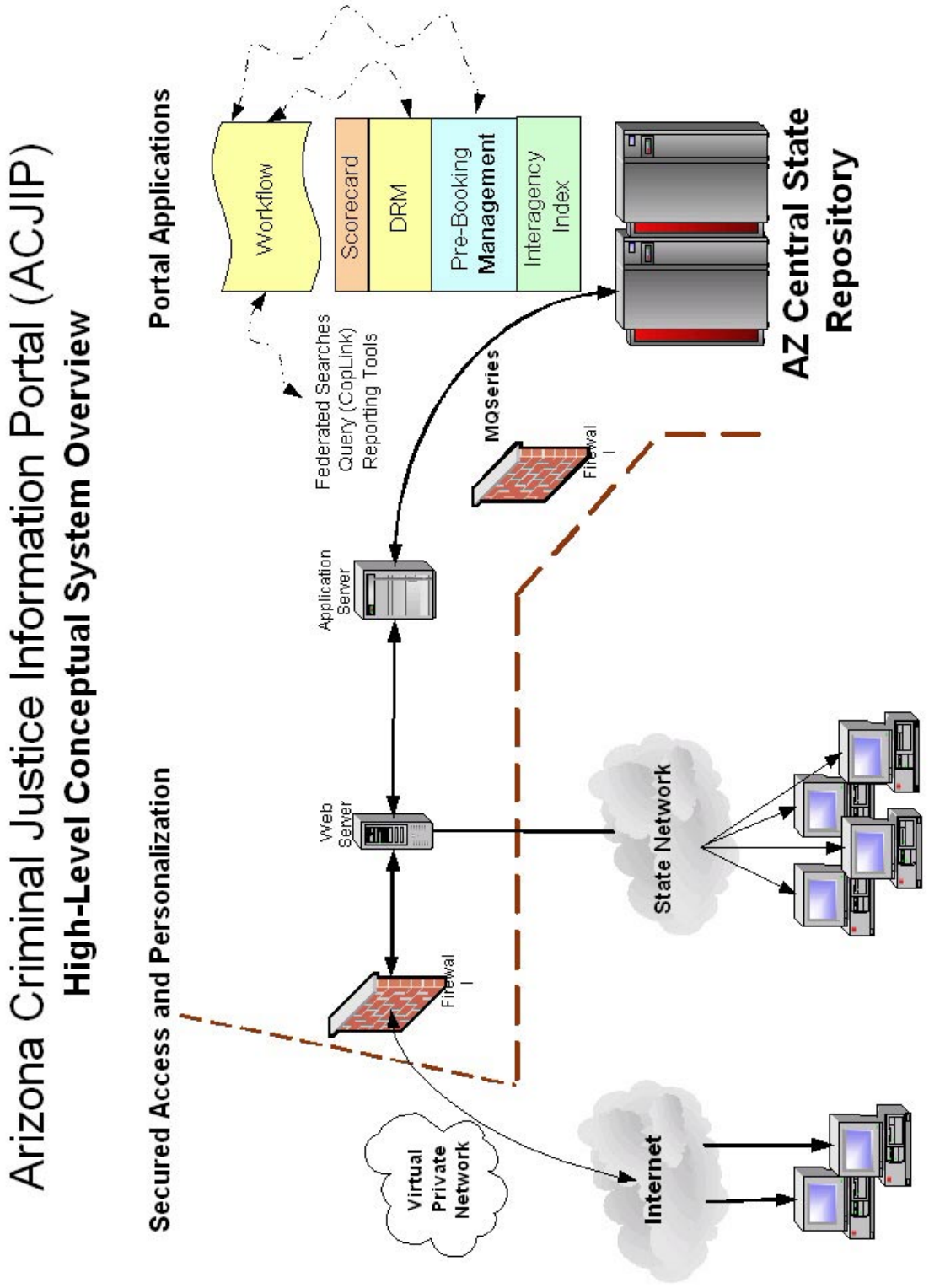
Resources/Assets	Benefits or Maintenance		Number Needed	Annual/One-time Costs
Disposition Reporting Coordinator(s)	$	X		$
AZCJIP Administrator(s)	$	X		$
Programmer(s) skilled in JAVA	$	X		$
Business Analysts(s)	$	X		$
Software	$	X		$
Equipment (Hardware, etc.)	$	X		$
Vendor Services	$	X		$
Facilities	$	X		$
Training	$	X		$
			Funds Needed ($):	

Table 3: Agency Funding Estimator

Table 3 above can provide a high-level estimate of the cost that a single agency may incur during the implementation phase of building AZCIP and the disposition reporting tracking system. When you consider the numbers that might be placed in the boxes for any given agency, it becomes clear that 300 participating agencies can generate considerable funding needs to the tune of several million dollars for each year of funding provided. As mentioned before in this report, agencies should plan to pick-up these costs for the future years after initial implementation in their own annual budgets. Table 3 does not necessarily include all of the costs of implementing all of the recommendations

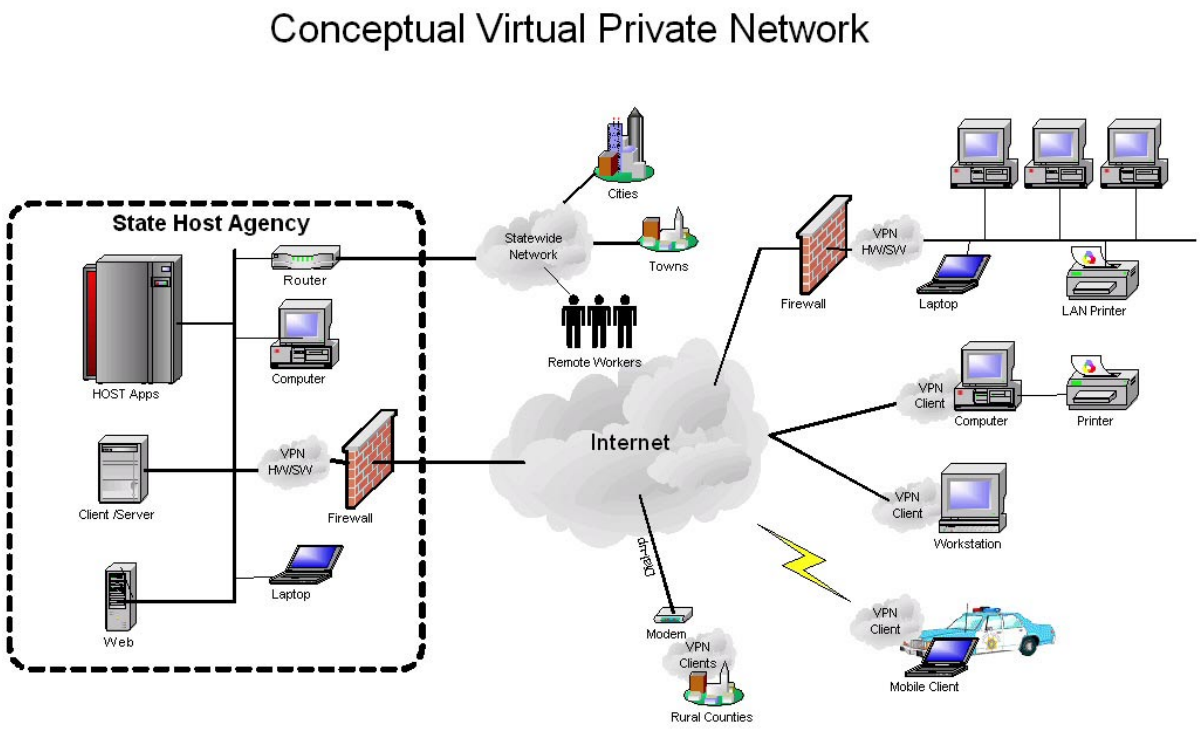
made in this report. Additional effort is needed to refine these estimates, and to apply Arizona-specific scope and criteria to the estimates. Full statewide implementation is likely to take 5 to 7 years and must be funded as a high-priority, fundamental part of the State's integrated criminal justice enterprise permanently.

Appendix A – Arizona Criminal Justice Information Portal



Appendix B – Virtual Private Networks (VPN)

A Virtual Private Networks (VPNs) are being used increasingly by government agencies to provide safe and secure remote access to shared systems and information over the Internet. VPNs provide privacy by using *encryption, keys, authentication, certificates*, and *digital signatures* to *tunnel* through Internet connections to access the secure systems needed. Tunneling through common Internet Service Provider's (ISP) connections to the web allows users to access systems just as if they were in their office with full access to a secure network.



The following is a sampling of government agencies using VPN to share information:

- Kansas Bureau of Investigation became the first state law enforcement agency to launch a virtual private network to exchange highly sensitive files via the Internet with the state's police departments.
- Florida became one of the first to launch a statewide VPN, a technology many state and local governments are eyeing to secure data transmissions while whittling communication costs.
- Office of Domestic Preparedness
- U.S. Department of Justice Office of Victims of Crime, Victim Services 2000: Five year demonstration project based in Denver, CO
- National Security Agency certifies vendor's VPN Firewall Brick for use in government agencies and departments
- IRS Uses VPN Technology to Empower 15,000 Field Agents and Offices for Secure Remote Access Communications

- ACJC VPN Pilot (Planned 2002)

Encryption is used to scramble information making it difficult to impossible to read until unscrambled or decrypted on the other end. Strong encryption ensures that data is not vulnerable while being transmitted over the Internet. Encryption algorithms like Data Encryption Standards (DES) and Triple-pass Data Encryption Standards, 3DES and International Data Encryption Algorithm (IDEA) may be used, depending on the level of security needed, to apply well-tested and accepted encryption to data traveling across networks. Since the 1960's, various initiatives of the Department of Defense (DoD), National Aeronautics and Space Administration (NASA) and the National Bureau of Standards (NBS) have driven and influenced the development of some of these encryption standards. Today, the proliferation of technology throughout the world and the public availability of these encryption methods has driven commercialization of these sophisticated algorithms making powerful encryption available to everyone who needs to protect sensitive information accessed across computer networks.

Keys provide the extra security that makes encryption one-of-a-kind, though based on published standards. Keys are well named in that just like the key to your home or office, they are required to open decrypt the data flowing across the networks. Many applications like web browsers and others have taken to using a lock icon or a key to indicate that secure access is in play. If you do banking or make purchases over the Internet, you've undoubtedly experienced secure connections. You will usually see a small lock or a key icon appear in your browser's border. Like a pad lock, *encryption* provides the security by scrambling the data, and like a key or combination, *keys* make each lock unique so that each lock, though there are many, cannot be opened by anyone who has the same type of lock. Keys are typically very long character sets. As a rule of thumb, the more characters in the set, the more secure the key. For instance, 3DES applies multiple keys to the encryption resulting in a 168-bit key length; one of the most secure keys available.

Some applications of key security models involve a single key to both lock and unlock the data at each end of the transmission. They are called symmetrical keys. More powerful key security models involve the use of two keys; one to lock the data (Public Key) and another to unlock the data (Private Key). These are called asymmetrical keys. Asymmetrical keys are much larger and take considerable time and computing power to use. As such, the use of asymmetrical keys is often used only to establish the initial VPN tunnel, while symmetrical keys are used for the high-frequency faster transactions over the established VPN connection.

Authentication is another component of VPN. Authentication provides the assurance that computers and users are who they say they are. The most common method of authentication is user name or id and password. Authentication also provides for system integrity in that is guarantees that the data received has not been tampered with in any way. Users' name or ids and passwords are maintained in a database. When a user logs on, his or her name and password is evaluated by the system against the database. If the information entered matches the database, the user is permitted to connect to the network. Though common, this is not the most effective means of authentication, nor is it very secure because it depends too much on the user to provide passwords and other information that is difficult for someone else to guess. Mother's maiden name, a child's birthday, the dog's name are all too commonly used because they are easy to remember, so additional steps must be taken to enforce policies and use of passwords.

Certificates are the network equivalents to a driver license or official ID card. Certificates are data records that contain users' name, address and public key information, as well as an expiration date that indicates how long the certificate is valid. Certificates allow people and computers to authenticate one another without relying solely on the user's ID and password. Certificates also distribute public keys between systems and users.

Digital Signatures are also used in authentication. Digital signature ensures the integrity of *certificates* by authenticating the user who sent the data, and ensuring that the data has not been altered in any way. Digital signatures are created for each message through the use of complex hashing algorithms. The hashing algorithm then generates a message digest. The message digest is then encrypted using your public key to generate the digital signature for a given message.

When the encrypted message is received on the other end, the public yet is used to decrypt the message digest. The hashing algorithm is used to reproduce the message that is then compared to the message in the message digest received to ensure its integrity. If the messages match, then the message is authenticated and has not been tampered with.

There's more to this, but suffice it to say that certificate-based authentication and the use of digital signatures create signed messages that can verify their origins from people, computers and organizations, and insure the integrity of the message sent from one place to another. This kind of authentication may be implemented through programming, or by using protocols like Lightweight Directory Access Protocol (LDAP). These methods are enabled by a set of security services called Public Key Infrastructure (PKI) that provides the ability for exchange of authentication information between people and systems that do not know one another. These technologies make possible e-commerce, extranets, and other innovative web-based applications.

The infrastructure required to provide this level of security and authentication is costly, complex and expensive to maintain. Many VPN providers have this infrastructure and provide the necessary services as an included part of their service to customers.

Tunneling is a component of VPN that allows people, computers and organizations to send and receive secure messages between private IP addresses over the open, public Internet. The Internet works with what are known as publicly routable IP addresses. These addresses are tied to common names like Yahoo and Amazon.com and can be reached by anyone. If known, any user can also access a given web site or directory by its actual IP address. IP addresses that exist within private networks are private IP addresses. By tunneling, users can connect to private IP addresses just as if they were logged on to a computer in the office. The secure tunnel connection can be made over Internet connections provided by virtually any ISP. Users can access the Internet via that ISP using dial-up, cable, DSL and other methods. Even users connected to LANs in their offices can use VPN to connect to other networks to share information regardless of the network that their company uses. So long as they can access the Internet, tunneling allows them to create virtual private networks to share information and allow access to systems and applications.

More Stringent Requirements for Federal Government Agencies

The National Institute of Standards and Technology (NIST) published the Federal Information Processing Standard (FIPS) 140-1, Security Requirements for Cryptographic Modules. In short NIST defined a 4-level set of standards for data encryption that only recently has come to commercial availability from various remote access providers offering VPN and other solutions.

The standard defines the security requirements that must be satisfied by a cryptographic module used in a security system protecting unclassified information within IT systems. There are four levels of security: from Level 1 (lowest) to Level 4 (highest). These levels are intended to cover the wide range of potential applications and environments in which cryptographic modules may be deployed. The security requirements cover matters related to the secure design and implementation of a cryptographic module. These areas include basic design and documentation, module interfaces, authorities and roles, services, physical security, software security, operating system security, key management, cryptographic algorithms, self-testing, etc.

The different levels within the standard provide different levels of security and in the higher levels, have different documentation requirements.

Level 1: The lowest level of security. No physical security mechanisms are required in the module beyond the requirement for production-grade equipment.

Level 2: Tamper evident physical security or pick resistant locks. Level 2 provides for role-based authentication. It allows software cryptography in multi-user timeshared systems when used in conjunction with a C2 or equivalent trusted operating system.

Level 3: Tamper resistant physical security. Level 3 provides for identity-based authentication.

Level 4: Physical security provides an envelope of protection around the cryptographic module. Also protects against fluctuations in the production environment.

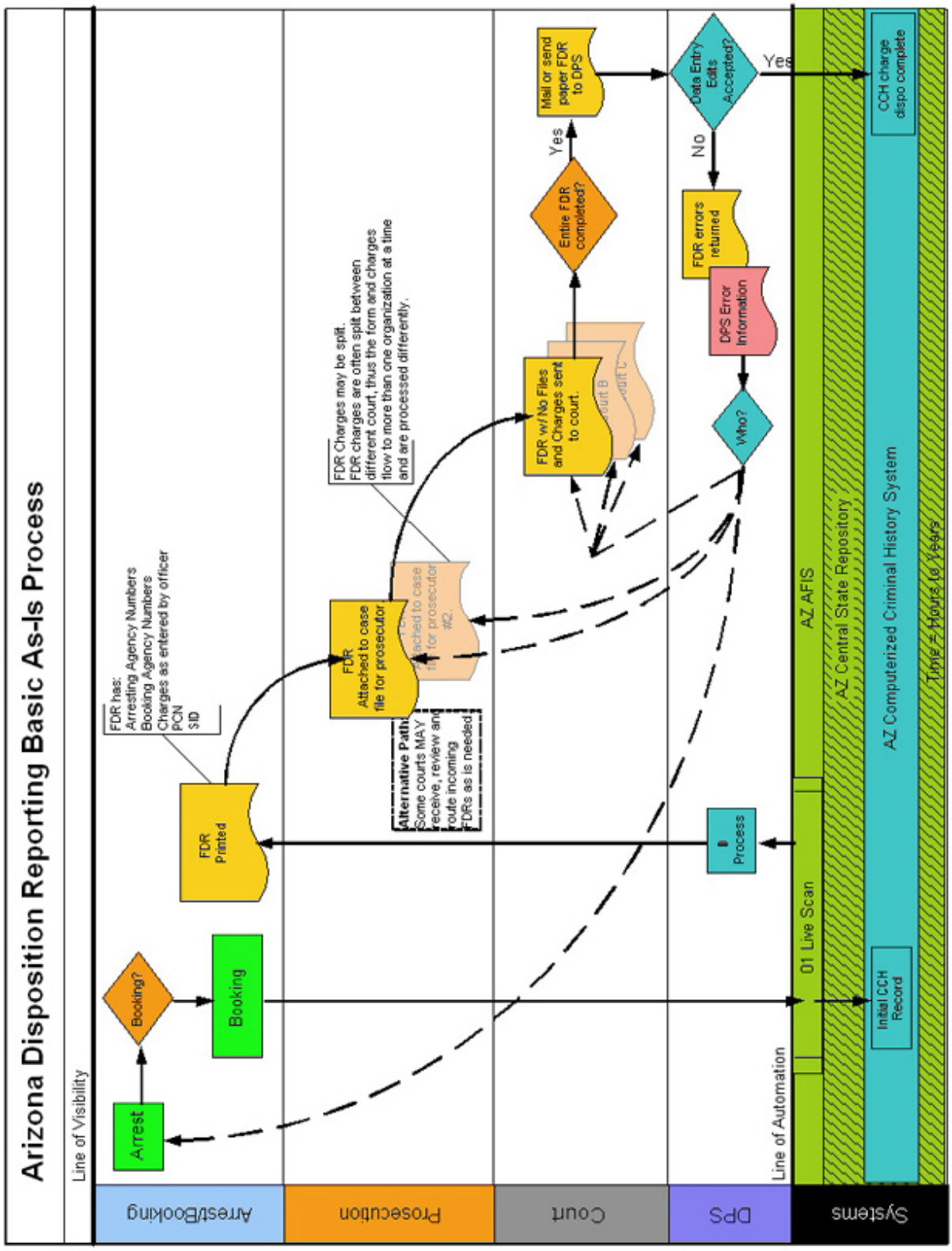
FIPS 140-2 was signed on 22nd June 2001. FIPS 14-2 specifications further modify the standard. Certified products will likely start to become available in late 2002.

The security requirements of federal agencies may impose additional security requirements on state and local government entities that interface with federal systems to which these requirements apply. For further information on FIPS 140-1 and 140-2 certified VPN providers visit the NIST web site at http://csrc.nist.gov/publications/fips/index.html

Summary

VPN is one approach to providing access to secure networks across the public Internet. Solutions like Sun Microsystems I-Planet and IBM WebSphere provide Java-based secure remote access solutions. Likewise, Citrix Meta-Frame technology can be used to provide centrally managed applications to remote users. In most cases, the remote access solutions require specialized software to be installed on the remote computers, as well as software and hardware at the site to be accessed. Depending on the number of users to be supported, the computing environment and security needs, cost and complexity, agencies should weigh their options carefully and opt for the most cost-effective and secure method of providing network access without the need to first establish additional costly infrastructure. VPN solutions are proliferating rapidly and solution providers are competitive. Many will set-up pilots at little or no cost in order to prove their capabilities to potential customers. Organizations considering various remote access solutions should ask providers about their pilot offerings. Solutions like VPN are in use throughout the world and make it possible to get everyone connected now.

Appendix C – As-Is Basic Process



Appendix D – To-Be Process